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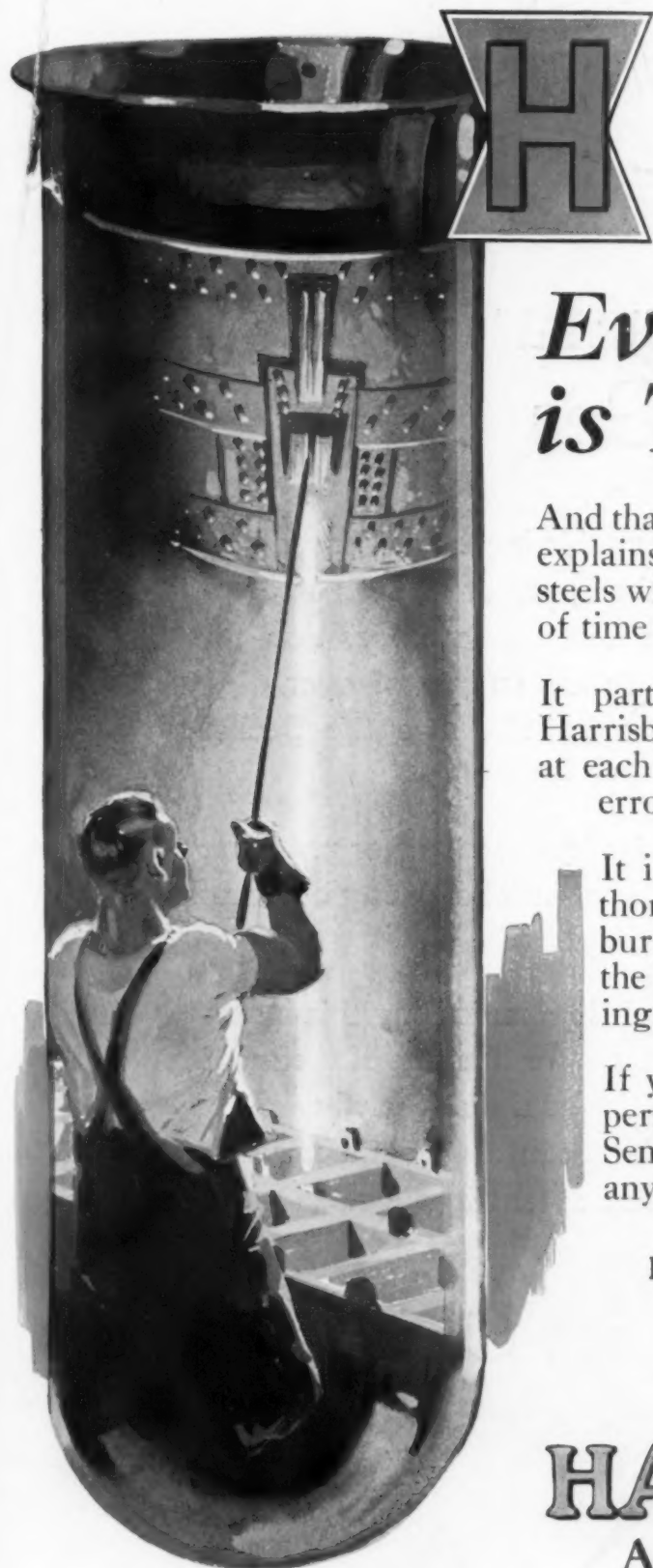
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THE IRON AGE

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It partly explains the promptness of Harrisburg service. Frequent inspection at each stage of production prevents errors and delays.

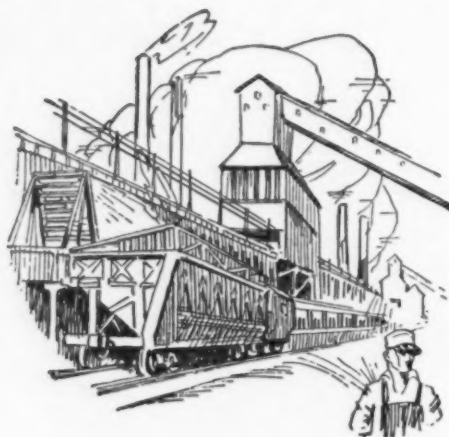
It is the symbol of Harrisburg thoroughness and the basis of Harrisburg's absolute conformity to even the most rigid specifications, including delivery dates.

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WHEN the inevitable increased demand for gas comes, the operator of Becker Type Combination Ovens is in a favored position, for the assurance of a future supply of over 60% more coke oven gas is built into the Becker Oven.

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The Koppers Company
Pittsburgh, Penna.

Chicago, Ill.

New York City

THE IRON AGE

New York, June 17, 1926

ESTABLISHED 1855

VOL. 117, No. 24

Foundry Has Electric Ovens

Completeness of Electrical Application Is Feature of Steel Foundry—Core Drying and Annealing Is Done Electrically—Hard Iron Grinding in Malleable Plant

AN electric steel foundry, practically 100 per cent electrically equipped, is an outstanding feature of industrial Chattanooga. In completeness of electrical application it is doubtful whether the plant has a peer anywhere; as a complement to the gray iron and malleable departments of the Ross-Meehan Foundries, it has enabled that company to supply the Southern market with a wide range of castings for a diversity of uses. Completed in December, 1924, the electric steel foundry is 122 ft. wide and 242 ft. long and is equipped with a Moore "Rapid 'Lectromelt" tilting arc furnace, supplied by the Pittsburgh Electric Furnace Corporation, Pittsburgh.

The furnace has three carbon electrodes, made by the National Carbon Co., Niagara Falls, N. Y., and has a nominal rating of 3 tons per heat. Flexibility in output is obtained, however, by changing the thickness of the lining. As much as 12 tons can be melted by lowering the bottom and decreasing the lining.

Heats vary in length according to the size of the

charges. The first heat with a charge of 4 tons takes about 2½ hr. and succeeding heats from 1¾ hr. to 2 hr. The initial heat with a charge of 12 tons takes approximately 5 hr. A very low-phosphorus pig iron and selected and analyzed steel scrap, including coil springs, plates, billet crop ends and heavy steel turnings, compose the raw material melted. Only scrap analyzing less than 0.04 per cent in phosphorus and sulphur is used.

Metal is held in the furnace for refining, since the company does not regard deoxidizing in the ladle as good practice. The steel is not tapped until it is "killed dead." The results of refining are apparent both in the test bars and the slag.

Test bars for a striking plate casting for railroad car work, from heat No. 1001, showed the following:

Tensile Strength, Lb. per Sq. In.	Elongation in Per Cent	Reduction in Per Cent
81,600	28	46.8
83,120	26.6	47.7



TWO Electric Core-Drying Ovens Are Built Integrally with a Mold-Drying Oven. Heat is automatically regulated to plus or minus 2½ deg. Fahr. and the length of the drying periods is automatically governed by clocks, one for each oven

So far most of the output of the furnace has been plain carbon steel, although some high-manganese and high-carbon steel has been made.

Adjacent to the furnace is a transformer room containing a single-unit 1500-kva. General Electric Co. transformer, which steps down the incoming current from 6600 volts, 3 phases and 60 cycles to a range of 80 to 220 volts, according to the melting requirements. Walled off in a separate chamber in the transformer room are the reactors and circuit breakers.

In another building the Ross-Meehan company has a baby Tropenas converter, which is used when the electric furnace is pressed to turn out tonnage and the sales department hasn't contracted to furnish electric steel castings. During the war as many as 20 blows, yielding 22 tons, were obtained from the converter in a day.

Dry Cores and Molds in Electric Ovens

One of the most unusual features in the electric steel foundry is the employment of electricity for drying molds and cores and for annealing castings.

Swartwout General Electric Co. equipment is used for core and mold drying. There are two core ovens and back to back with them a mold-drying oven. Heat is automatically regulated for plus or minus $2\frac{1}{2}$ deg. Fahr., or a total spread of 5 deg. Automatic control of the length of a heat is effected by clocks, one for each oven, which throw out the current at a preset time. This permits the ovens to be left without attendant when cores or molds are being dried. An indicating thermometer is placed on each oven.

The mold-drying oven is of the truck type, i.e., molds are loaded on a truck and run into the oven. The oven is 6 ft. 8 in. wide, 9 ft. 4 in. long and 7 ft. 6 in. high above the rails of the car. The connected load is 136.8 kw. on 440-volt 3-phase current. Heating units are mounted on the side walls and in a pit underneath the truck. One-third of the heat is supplied from each side wall and one-third from below. There is a total of 36 heaters, each heater being rated at 3.8 kw. on

110 volts. Groups of four heaters are connected in series on 440 volts. The oven is equipped with a door switch which throws the power off when the door is opened, thereby preventing the operator from coming in contact with live resistors.

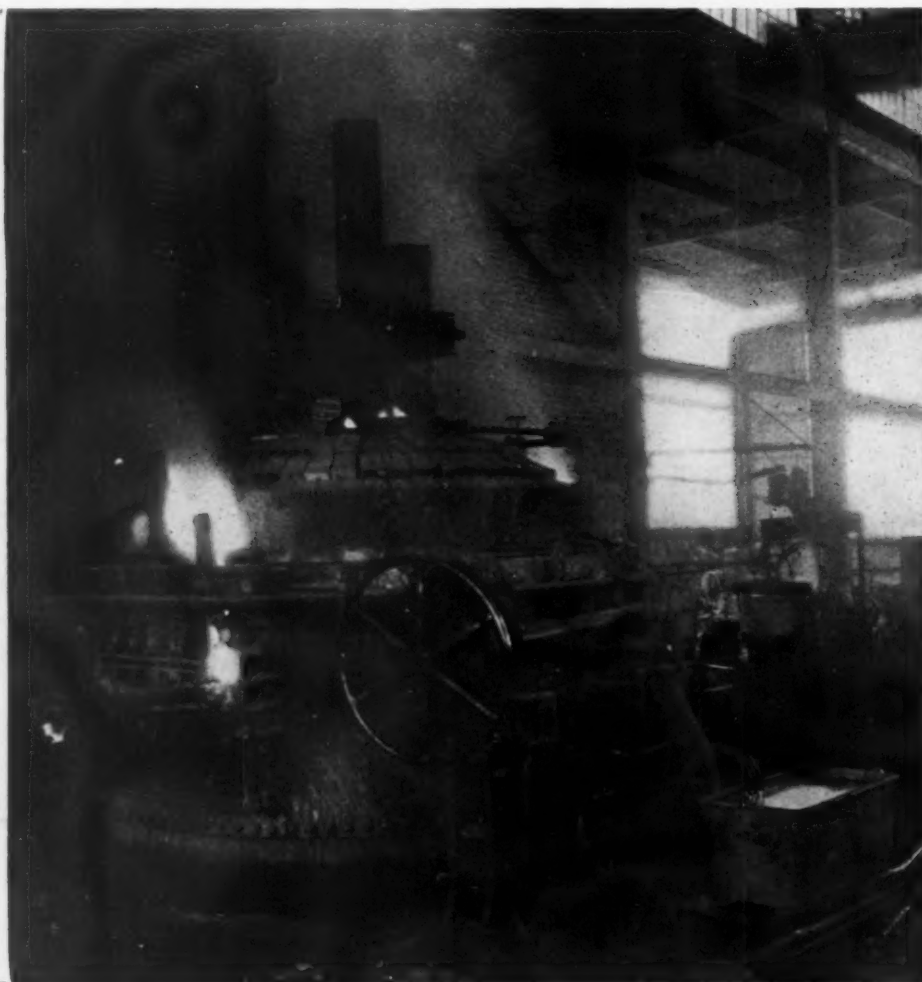
The core-drying ovens are of rack type, each oven being 4 ft. 9 $\frac{1}{2}$ in. wide, 6 ft. 6 in. high and 5 ft. 11 $\frac{1}{4}$ in. long. The connected load of each oven is 45.6 kw. on 440-volt 3-phase current. Six heaters are mounted on each side wall. Like those in the mold-drying oven, the heaters are rated at 3.8 kw. each on 110 volts, and groups of four are connected in series on 440 volts. These ovens also have safety door switches. Both the mold-drying oven and the core ovens are constructed of sheet steel casing with 4-in. heat insulation.

Castings Annealed in Automatically Controlled Electric Furnace

The annealing oven was designed and electrically equipped by the General Electric Co. Brick work, structural steel and iron were furnished and erected by the Ross-Meehan company. The furnace is of car-bottom type, and its working dimensions are 6 $\frac{1}{2}$ ft. wide, 10 ft. long and 4 ft. high. The connected load is 340 kw. on 440-volt 3-phase current. The side walls are built of 4 $\frac{1}{2}$ -in. insulation brick, 4 $\frac{1}{2}$ in. of insulating powder, and 4-in. red brick on the outside. The arch is constructed of 9 in. of fire brick and 10 $\frac{1}{2}$ in. of insulating brick. The cars have 9 $\frac{1}{2}$ in. of insulating brick and 4 $\frac{1}{2}$ in. of fire brick.

The heating units, mounted on the side walls, consist of heavy nickel-chromium ribbon, formed in loops supported and spaced by refractory pieces extending from the walls. The loops of the resistors are spaced closer together at the door, giving extra heat to compensate for door losses. The control panel is equipped with contactor, operating and overload relays and a Y delta switch, which provides a high and a low heat of full capacity and one-third capacity. The switch is hand-operated.

HEATS from the Electric Furnace Vary in Length According to the Size of the Charges. The furnace has a nominal rating of 3 tons per heat, but as much as 12 tons can be melted by lowering the bottom and decreasing the lining



THE Temperature of the Annealing Furnace Is Controlled by a Two-Point Regulating and Recording Potentiometer. The length of the annealing period is also automatically controlled



The temperature of the furnace is controlled by a Leeds & Northrup two-point regulating and recording potentiometer. A button is pushed, turning on the current, and the furnace is set for the desired annealing cycle. No further attention is required. During annealing, the potentiometer records the temperature on a chart, being so sensitive in doing this that it registers the passing of the critical point by indicating a drop in the temperature of the oven.

A charge for the furnace consists of approximately 10 tons of steel castings. When heated to 1600 deg. Fahr., the charge is removed from the furnace, and a cold charge on a cold car is put in its place.

The furnace has two thermocouples, one through a side wall near the resistors, which is used to record temperature and control the furnace, and the other one through the bottom of the car at the coldest part of the charge. When the lower thermocouple comes to a temperature of 1600 deg. Fahr., the charge is annealed and ready for removal from the oven.

Constant Potential Generator Supplies Welding Current

For arc welding and cutting a General Electric Co. 800-amp. constant potential generator, with driving motor, starter and resistors for regulating the current, is employed. Oxy-acetylene torches are also used. The plant has its own oxweld generator, piping the gas to points where it is used in the foundry. Oxygen is obtained from the Burdett Oxygen Co., Chattanooga, which produces it electrolytically.

Steel flasks are used on the molding floors. The main bay, containing the molding room and the furnace, is served by two overhead electric traveling cranes, one of 10 tons and the other of 5 tons capacity. A 3-ton traveling crane commands a side bay containing the cleaning equipment. All three cranes were furnished by the Milwaukee Electric Crane & Mfg. Corporation.

For most castings bottom-pour Whiting ladles are used. Small castings are lip-poured. Ladles are dried out with coke.

For core sand a motor-driven muller is used. The grinding rolls are cast from Meehanite, a metal developed and patented by the Ross-Meehan Foundries. Ordinary gray iron mulling rolls, it was found, would spall in three months. The Meehanite mullers have been in service for eight months.

Castings Get Double Cleaning

All steel castings made in the plant get a double cleaning, the first, after leaving the sand, to remove

imperfections and the second, after annealing, to give them finish. Equipment includes a Pangborn sand blast room and a Sly sand blast barrel. Crushed steel abrasive is used. Other equipment embraces four swing grinders and a double stand grinder. When castings are ready for annealing they are placed on the charging car, which is pushed to a turntable, turned 90 deg., and rolled into the annealing oven.

All the alternating current used in the plant except in the electric furnace is at 440 volts. Three 750-kva. transformers, situated outside of the building, step down the high-tension incoming current to that voltage. Current is bought from the Tennessee Electric Power Co., which has nearby hydroelectric plants at Hales Bar on the Tennessee River and on the Ocoee River. A switch enables the Ross-Meehan plant to throw its line on one or the other of these sources of supply as occasion may demand. A motor-generator set supplies current for winch motors on the furnace and for the arc welding generator motor, the only pieces of equipment which are on direct current.

Compressed air is supplied by a motor-driven five-stage Ingersoll-Rand compressor.

The foundry was laid out so that its capacity might be doubled. A second transformer room, situated near the present one, is now used for storage. To insure against costly interruptions in operations spare parts for important equipment are kept there. For example, spare windings for the furnace transformer are stored.

Roof Construction Permits Escape of Smoke and Gases

The plant is of steel, brick and concrete construction, with continuous steel sash in the side walls and in the monitor. Under the eaves of the main roof and the monitor roof spaces have been left open for the escape of smoke or gases. This type of construction is well adapted to conditions in the South, although it would not prove satisfactory in a colder climate. The building is of false construction at the end to permit extension. Refuse from the foundry is dumped in a large hollow in the rear. The filling of the low land and the extension of the plant are progressing together.

Combined Capacity in Steel, Gray and Malleable Iron Is Large

Besides producing electric steel castings, the Ross-Meehan Foundries make malleable, gray iron and Meehanite castings. Based on the actual average production per molder per floor, the foundries have a capacity

of 70,000 tons of good castings annually. The entire plant may be classed as a jobbing shop, since all products are made to order under specifications from buyers. In a well equipped laboratory all raw materials are analyzed as they come in and all finished products undergo chemical and physical analyses before they go out. A testing machine built by the Tinius Olsen Testing Machine Co., Philadelphia, is used for tensile and transverse tests, and a drop hammer is employed for impact tests. Test bars are cast from every heat.

The present malleable plant was reconstructed during the war, when old A-frame roofs were replaced with monitor-type roofs of the same design as that over the electric steel shop, previously described. Inasmuch as the work is all of a jobbing character, there is not a great deal of machine rigging. In the central bay hand molding is done and in the side bays are benches equipped with plain or jolt squeezers. The floors are of clay and the gangways of concrete. Ladles mounted on buggies are used for distributing metal.

Much attention has been given to the study of sands. Most Southern sands contain a high percentage of iron oxides and therefore must be neutralized by generous admixtures of Northern sands. Study is now being given to the preparation of synthetic molding sand, i.e., mixing silica sand and bond. Each foundry is wired for sand cutters and has a Simpson mixing mill for preparing facing.

Malleable Foundry Has Only Air Furnaces in South

The malleable plant is equipped with four melting furnaces, the only air furnaces in the entire South. There are one 25-ton, one 15-ton and two 10-ton furnaces. These may be turned over three times a day when running full. Each furnace is commanded by Shepard floor-control, overhead electric traveling cranes for handling bungs and charging buckets.

Since no malleable pig iron is manufactured in the South, metal must be brought in from the North. The furnaces are fired with bituminous coal mined in Kentucky. For the annealing ovens coal from the immediate vicinity of Chattanooga is used. Blowers and compressors are motor-driven from central station power. On the second floor of the plant, space has been set aside for pattern storage. This is protected by sprinkler equipment.

In a small brass and aluminum foundry a crucible furnace is used for casting metal patterns.

Find Many Advantages in Hard Iron Grinding

In the cleaning department the company has just changed its practice from soft iron to hard iron grinding. It was found that the heat generated in grinding sometimes created hard spots in the castings. Another advantage from the change is that scratches created in grinding the hard iron are removed in the subsequent annealing. Perhaps the most important gain from hard iron grinding is in the reduction of scrap castings. The main inspection of the appearance of the

castings is after the hard iron grinding. When imperfections are disclosed, the castings are reclaimed by means of a portable General Electric Co. welder. Successful welding, it should be noted, is not possible after castings have been annealed.

Hard iron grinding speeds up production. According to the practice in the Ross-Meehan plant, all castings poured on one day must be cleaned the next day. Formerly the grinding was done as quickly as possible after the ovens were dumped, but it was difficult properly to control the cleaning routine.

For all malleable castings provision is made on the patterns for test lugs. Examination of the lug fracture gives another check on the annealing, disclosing whether it has been carried to the proper point.

Annealing Is Carefully Controlled

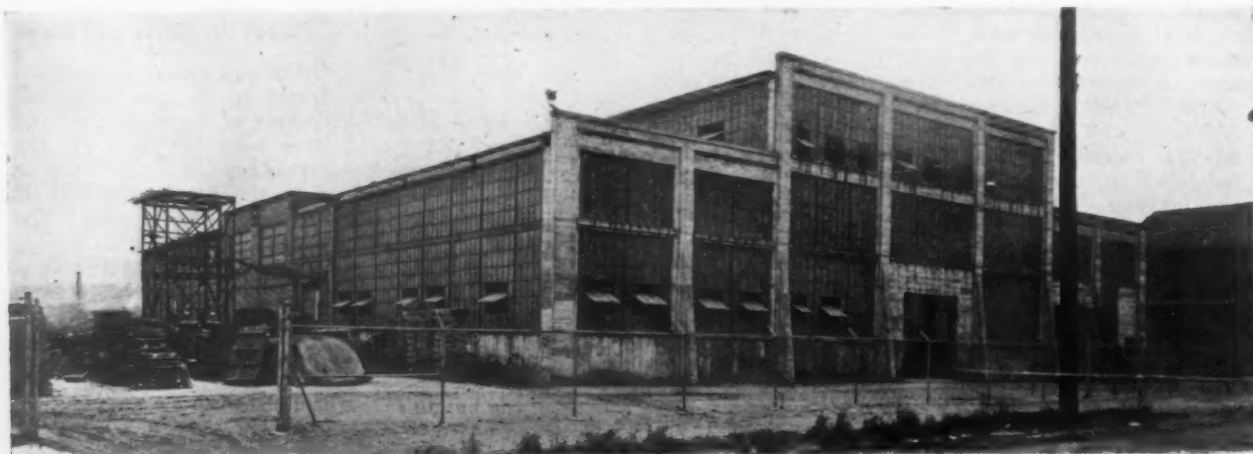
There are 12 annealing ovens, each connected with a Price indicating pyrometer. From this instrument the fireman keeps a log of the temperatures in the hottest and coldest parts of each oven. This record is checked with the charts of recording pyrometers, which keep a continuous record of the ovens with which they are connected. There are two pyrometers, furnished by the Brown Instrument Co., each capable of keeping records for two ovens at a time.

After annealing the castings are cleaned. Cleaning equipment includes a Sly sand blast barrel and eight tumbling mills. Beyond the annealing and cleaning department is a shipping room. At one side deliveries are made to motor trucks, and on the opposite side shipments are wheeled directly into freight cars. The railroad tracks have been depressed so that the car floors are on a level with the plant floor.

Most of the plant's output in malleable castings goes to the railroads. Castings are not shipped to points north of the Ohio River because of freight rates. All malleable pig iron must be brought from the North at high freight rates and the shipment of malleable castings back would mean doubling the heavy freight burden. The company therefore regards the South and Southwest as its natural market. The distribution of its products, outside of the North, is wide, reaching from Florida to California.

The Ross-Meehan property is bisected by the Chattanooga Belt Railroad, sidings from which reach into the different foundries. This makes for an economical distribution of raw materials. For example, coal for annealing ovens and air furnaces and pig iron and scrap for the air furnaces are unloaded in the yard immediately adjacent to the equipment.

The Ross-Meehan plant also embraces a gray iron foundry equipped with three cupolas, 96 in., 74 in., and 38 in. in diameter respectively. This plant is now used both for casting gray iron and Meehanite. Space in the plant property has been set aside for a foundry which will be constructed for Meehanite production exclusively. Adjoining the gray iron foundry is a well



Under the Eaves of the Main Roof and the Monitor Roof of the Steel Foundry Spaces Have Been Left Open for the Escape of Smoke, Dust or Gases

equipped wood and metal pattern shop. A machine shop is located in the only building still standing of those which comprised the plant in 1888 when the Ross-Meehan company was established. A wide range of

work is done in the shop. The machining of special castings for oil refineries, which the company produces in considerable quantity, requires large tools capable of precision work.

ACID-RESISTING BRONZE

Advantages of Alcumite in Pickling Equipment—Properties of the New Aluminum Alloy

BY W. E. CORSE*

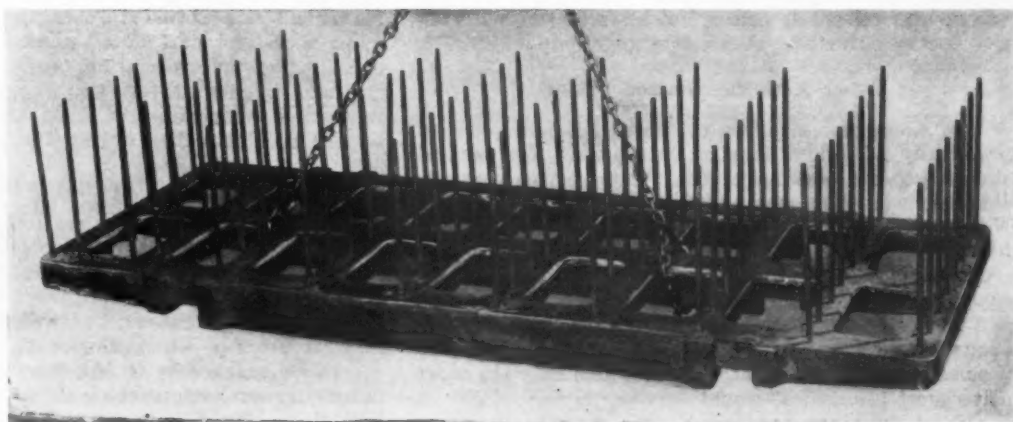
AN acid-resisting bronze with the strength of steel has been developed by the Alcumite Corporation, a division of the Duriron Co., Dayton, Ohio. Research on the aluminum bronzes has shown that the addition

resisting bronze can be put, and recent developments indicate that many useful outlets in engineering practice will be found for such material.

Growing Uses for Sheet Steel

Among the newer and growing uses for sheet steel emphasized in the literature of the Sheet Steel Trade Extension Committee, Oliver Building, Pittsburgh, are waiting stations for railroads and motor bus lines and

Alcumite Pickling Rack for Sheet, Each Row Carrying 10 to 12 Sheets



of iron improves both the physical properties and the resistance to acid corrosion. As one of the uses of interest to steel makers is in pickling equipment, it was decided to see what the new aluminum bronze alloy, known as Alcumite, would do in that type of service.

Preliminary trials proved so satisfactory that the company has produced, from both castings and rolled shapes, the various pieces of equipment required in pickling. These include crates, baskets, pins, racks and tank rods.

Ventilation of pickling rooms always is a difficult problem because of the corrosive nature of the fumes. Alcumite fans and ducts are proving satisfactory for that purpose. Although various kinds of ventilating systems are in use, all of them require acid-resisting material. The nearer such material approaches steel in working qualities, the easier is the job of fabrication. Fortunately Alcumite can be worked as readily as steel so that no change in equipment is necessary when changing from one material to the other.

It is interesting to note that Alcumite, one of the aluminum bronze alloys, has an average tensile strength of 75,000 lb. per sq. in. in casting and in the hot-rolled products shows a strength as high as 100,000 lb. The metal is ductile and readily machined, and may be formed into any of the commercial shapes.

Resistance to fatigue or alternating stress is an outstanding property of the aluminum bronzes. The particular range of compositions into which Alcumite falls is about the highest of the series, so that for parts in which this property is an advantage, Alcumite is most acceptable. In some cases actual service tests show a superiority to steel in this respect and a marked improvement over many other industrial bronzes.

The resistance of the bronze to corrosion is not confined to acids and chemicals, but is shown by experience to place it among the leading materials in resisting the action of sea water. Engineers are beginning to appreciate the many uses to which a strong acid-

resisting bronze can be put, and recent developments indicate that many useful outlets in engineering practice will be found for such material.

The sanitary feature of sheet steel makes it desirable for tops of lunch room counters, says the committee, and it is pointed out that there are 70,000 lunch rooms in the United States which are prospects for steel in this form.

To Promote Sales of Structural Steel

In an effort to promote the sale of structural steel on the basis of the service it will render rather than on the basis of the price per pound, the American Institute of Steel Construction has begun the publication of a sales manual, the first two sections of which have just appeared. The manual is edited by T. A. North, formerly associate editor of the *American Architect*. It contains constructive comparisons between the service rendered by steel and competitive products and marshals the salient points in favor of steel construction that the salesman is prone to overlook. The manual will be published in about 100 sections, to be issued at regular intervals.

Steel Roof Lasts 60 Years

Sixty years of service for a sheet steel roof is the record pointed out by the Sheet Steel Trade Extension Committee, Oliver Building, Pittsburgh. This roof was recently removed from a residence at Elmira, N. Y., when the building was demolished to make room for an improvement. The sheet roofing was in such good condition, it is stated, that it was purchased by F. S. Burgess, Son & Co. of Elmira and cut up into shingles to be resold for further use.

*Consulting metallurgist with Alcumite Corporation.

Electrical Engineers Meet

Chicago Convention Heavily Attended — Plant
Transportation, Safety, Refractories and
Open-Hearth Roofs Discussed

PRESIDENT GEORGE H. SCHAEFFER, electrical engineer, Carpenter Steel Co., Reading, Pa., opened the convention at 10 a. m. Monday. He stressed the point that iron and steel are among the few essentials whose present prices are the same as those existing before the war. As a matter of fact, some grades of steel are cheaper now than before the war. The significance of this statement cannot be overestimated. To meet today's market at pre-war prices, or even under, and at the same time pay advanced wages and advanced prices for all material entering into the manufacture, seems like an impossibility.

Other Activities Raised Prices

Railroads had recourse to increased rates, so had practically all other lines of enterprise. The central station got the backing of the public service commission and was thus assured of a manufacturing profit. Not so with the iron and steel manufacturer, however, for there was no public commission to authorize increased prices. In fact, the iron and steel tonnage capacity was greatly increased on account of the war, and to keep the plants running at anywhere near capacity meant stimulating a demand at low prices. The problem resolved itself into a race which only the most fit or most economical would survive.

There remained only one course open to the steel mill executive—reducing the cost of production to the point where a margin of profit could exist. Economies had to be made, mill operations had to be cheapened, blast furnaces and waste heat used more economically, and steam used more efficiently. The greatest savings were accomplished in electrification. Today the installation of steam drive for a mill is an exception rather than the rule. The company using steam drive is giving its competitor an advantage which, in many cases, has resulted disastrously.

A. J. Standing, electrical engineer, Saucon plant, Bethlehem Steel Co., was of the opinion that one of the primary functions of the steel mill electrical department is to drive continually toward reduction of cost on each ton of steel produced. In the desire for something better and the resulting periods of transition from one development to another, there is ever present that one dominant question of the cost of spare parts required to maintain existing equipment, as compared with the cost of replacing such equipment with new and better apparatus, giving longer life and greater freedom from failures, but adding its burden of cost of additional spare parts, none of which may be interchangeable with the old parts. The realization of this spare part cost has led to an attempt to standardize equipment and thus permit spare parts to protect a greater amount of equipment at a lower carrying cost.

Safety Stressed

Monday afternoon was devoted to the safe operation of overhead electric traveling cranes. C. L. Baker, management's representative, Bethlehem Steel Co., Johnstown, Pa., presided. During the course of the meeting a set of rules for crane operators and floormen was read. Dr. W. D. Fisk, chief surgeon International Harvester Co., laid stress upon the physical qualifications of a crane operator, stating that not only should an operator be carefully examined physically before being placed on a crane, but that he should be reexamined at stated periods throughout the term of his service. The chief physical qualifications of a crane operator are accurate hearing, clear vision and the

ability to remain calm and to think quickly and clearly under stress of unusual occurrences.

The services of the National Safety Council were offered to all by its president, Charles B. Scott, who stated that, in an analysis of about 15,000 accidents, only 8 per cent had been caused directly by electric current. In Mr. Scott's opinion three major points must be considered if safety in crane operation is to be attained. Those are: careful selection of crane men, complete and careful instruction, and continuous supervision. He stated further that safety should be made a distinct part of all plant operations. A past-president of the association, A. C. Cummins, electrical engineer Carnegie Steel Co., Duquesne, Pa., reported that in Pennsylvania in 1925 there were 66 more serious accidents than during the previous year.

Plant Transportation

ON Tuesday the morning session, held in the Crystal room, was given over to problems of transportation within steel plants. That complete electrification of steel plant yards would result not only in large economies of a direct nature, but would bring about many indirect benefits which cannot be evaluated, was the conclusion reached by O. Needham and David C. Hersherberger, general engineering department, Westinghouse Electric & Mfg. Co., in a paper entitled "Economies of Steel Plant Railroad Electrification." They recommended the 250-volt direct-current system, employing third-rail type locomotives, as the most economical system of transportation for steel plant yards. The return on the investment as compared with steam operation fully justifies the displacement of steam by electric motive power.

Diesel-electric locomotives occupy second place in point of operating economy and return on investment as compared with third-rail locomotives. The electric locomotive receiving its power from a conductor is reliable, this having been fairly demonstrated in a large number of electrifications, some of which have been operating for 20 to 30 years. The third-rail type locomotive has desirable features of operation difficult for other types to equal. It is quickly made ready for service, and its power is not limited by any local power plant on the locomotive itself. It can handle heavy loads at moderate speeds, and its general performance recommends it over other types of locomotives, when a suitable conductor system can be installed.

Small-Unit Transportation

Transportation within industrial plants in this country is costing \$3,000,000,000 a year, said Harold J. Payne, of the staff of the Society for Electrical Development. Many millions of the total are chargeable to handling operations of the iron and steel industry. By taking full account of existing methods in the light of available equipment, the present trend toward lower handling costs can be accelerated greatly.

Toward this end the electric industrial truck is destined to play an important part. The crane truck has proved especially valuable in the service of maintenance departments, each unit saving 35 men, in one plant. Pipe laying was expedited in a Pittsburgh steel plant through the use of such a unit. At another plant a basket in which the electrician works while trimming arc lights is handled by a crane truck. A high-lift truck equipped with a plow has proved a valuable means of clearing narrow runways of snow in winter. Smaller plants use the electric truck to spot freight cars, in the absence of a locomotive. Heat-treating

plants substitute long forks for a straight platform on the high-lift truck and decrease the labor required for charging carbonizing furnaces by 15 men per unit employed. The dump body attached to any platform makes it possible to handle cheaply bulk materials.

Advantages gained through the application of this or any other equipment designed for similar purposes depend not only upon direct saving in payroll expense, but also, to a large extent, upon other factors. An automobile manufacturer increased production more than five times in a manufacturing area only 33 per cent increased, and with a decrease in storage area of 25 per cent. A large concern building agricultural implements has stated that one of the principal savings made comes from decreased inventory cost through keeping material in platform containers at all times. Many plants have experienced a decrease in labor turnover as a consequence of the substitution of labor aiding electrics for back-breaking hand trucks, principally for the reason that this equipment does away with difficult manual jobs.

Yard switching and mill transportation was presented in a paper prepared by W. B. Potter and G. H. Shapter, engineers with the General Electric Co., Schenectady. This paper dealt primarily with the distinc-

so than to the manufacturers of fire brick, because of the fact that steel plants and their accessories utilize as much as 50 per cent of all refractories manufactured. As refractories production in this country each year approximates 4,000,000 tons, with a value of about \$60,000,000, the amount consumed in the manufacture of iron and steel is no small item.

The possibilities of notable developments with the common refractory materials are so far from promising that they need little consideration. There are a number of comparatively new materials, however, whose possibilities are not completely known and which may solve some present difficulties. These are silicon carbide, alumina in the form of corundum and diaspor, mullite, zircon and spinel. All have the advantage of high refractoriness and most of them, being of definite crystalline composition, are rigid under load when hot and subject to little or no permanent change in volume when subjected to high temperatures. Information as to their slag-resisting characteristics is generally lacking. The greatest disadvantage is their high cost. It is practically certain that, were it not for this factor, many of the materials mentioned would be used widely.

Since little betterment is to be expected in the common refractories, and since more durable products

OVER 500 engineers gathered, June 7 to 11, at the Hotel Sherman, Chicago, for the twenty-second annual convention of the Association of Iron and Steel Electrical Engineers. The importance of the convention and the interest shown in it are strikingly brought out by the fact that the registration showed a far greater percentage of attendance by engineers from all parts of the country than is usually to be expected or attained. The scope of the meetings was unusually broad and included problems and progress along the lines of safety, electrical and mechanical power installations, fuels and combustion within and the design of furnaces as applied to the production of steel.

A feature of wide interest was the iron and steel exposition in the Hotel Sherman ballroom, where over 75 manufacturers displayed and explained mechanical, electrical and miscellaneous equipment.

tion between yard and mill transportation and pointed out the various types of locomotives and their application.

Refractory Session

COMPUTED on the basis of average life, the cost of the refractories alone is not a large percentage of the total cost for producing steel, said M. C. Booze, Senior Industrial Fellow, Mellon Institute of Industrial Research, University of Pittsburgh. When the labor costs and idle furnace charges are included in the cost for refractories, however, the figure may become important. It becomes most significant when premature failure occurs, with a considerable loss of production.

Obtaining suitable refractories for industrial use is becoming a problem of general interest and is receiving more attention than ever before. It is admitted that in isolated cases deposits of raw materials have been exhausted and others are used which are inferior, but this condition is not frequently met. Even in Pennsylvania, where the greatest quantities of clays have been mined, geologists estimate that the fire clays in sight are sufficient for 25 to 50 years, and that undeveloped deposits are sufficient in extent to provide for an additional period of even longer duration. In Kentucky and in Missouri, where fire clays have been utilized in large quantities only within comparatively recent years, the clay resources are large, as they are also in many of the Western States.

This is even more true with raw materials used in the manufacture of silica brick. In some cases quarries have been worked out and deposits of accessible floe rock depleted, but high-grade material for silica brick is available in such quantities in a number of districts that there is no fear of exhaustion for a long period.

Large Amounts Involved

While the problem of suitable refractories is of importance to the iron and steel industry, it is no more

are too expensive for general use, it is to be expected that developments in the immediate future, for the purpose of extending the life of furnaces, will be along the lines of new furnace designs and different types of construction. Air and water-cooled walls are making headway and the possibilities along this and other lines are believed to be much greater than is generally appreciated.

Open-Hearth Roof Construction

Flat, suspended roofs on open-hearth furnaces may in some measure reduce the scouring of the roof along the front and back walls, because of the opening up of the space, which would reduce the gas velocity at those points. At present, said W. J. Harper, combustion engineer Donner Steel Co., Buffalo, his company is arranging to make two installations of suspended roofs.

On No. 2 furnace, on which a trial installation was made, a flat, suspended roof is being installed. This roof will be flat from front wall to back wall, but from end wall to end wall will still maintain the knuckles over the ports. The total depth of the tile will be 15 in. Proper provisions have been made in the design so that repairs can be made easily at well-selected points. The weight of the roof is taken off the walls. The entire walls can be removed without in any way disturbing the roof. Proper provisions were made for expansion and contraction of the roof without allowing open expansion spaces. This roof is now being erected.

No. 1 furnace is, to all intents and purposes, exactly the same as No. 2 furnace. However, on this furnace restricted ports are used. Therefore, it has been decided to take all of the castings that were used on the trial arch installation of No. 2 furnace and use them for the roof over the bath only, on No. 1 furnace. This arch will be arranged with tile of 15 in. total depth. The design will be such that repairs can be made easily at well-selected points. Within the next six months,

it is anticipated, data will be available for an excellent opportunity to determine the advantages, if any:

1. Of a flat roof over an ordinary sprung roof.
2. Of a flat roof over a suspended sprung roof.
3. Of a suspended sprung roof over an ordinary sprung roof.

Refractory problems in by-product coke plants were discussed by Martin J. Conway, combustion engineer Steubenville plant, Wheeling Steel Corporation, Steubenville, Ohio.

Steam Engines and Electric Heat

That the steam engine driven mill is not an obsolete factor in modern steel plant design was shown by M. J. Conway, combustion engineer, Wheeling Steel Corporation, Steubenville, Ohio. In his able paper he outlined results obtained by the installation at Steubenville of a Nordberg Mfg. Co., Milwaukee, uniflow engine. This installation offers an excellent object for comparison in that a modern boiler plant was erected to supply steam to the uniflow engine. Practically all data available heretofore have been based on the older type of engine units compared with the electric drive brought up to date at the moment of comparison. At Steubenville the Nordberg reversing uniflow engine

driving the 35-in. blooming mill showed 318 lb. of steam used per net ton of steel rolled, and the rate of rolling was 133 net tons per hour at the time of the test.

Thursday morning, preceding the paper on the steam-engine drive, W. P. Chandler, Jr., chairman of the electric heat committee, read a report which was a compilation of the views of individual users of electric heat. Subjects dealt with covered the advantages of electric heat, arc melting furnaces, induction furnaces, resistance furnaces, tool room heat-treating furnaces, roll heaters, low-temperature applications, electrically heated tin pots, wire drying and annealing, galvanizing kettles, babbitt pots, and the application of electric arc welding in the steel industry.

Thursday evening a formal dinner dance was held at the Bal Tabarin. Friday morning a special train was boarded for an inspection trip through the Gary, Ind., mills of the Illinois Steel Co. Golf bags were checked for delivery to the Gary Country Club, where a tournament was scheduled for Friday afternoon.

Discussions on some of the leading papers, omitted here because of pressure upon our space, will be published next week.

Blast Furnaces Around Birmingham

Growth from Three Stacks, of 18 Tons per Day Each, to 27 Stacks, of 280 Tons Each, Since 1870

A RECENT compilation of the number and capacity of blast furnaces in and near Birmingham, Ala., over a period of more than half a century, shows in striking manner not only the growth of the district as an iron producing center, but the rapid increase in the average size of furnace.

In 1870 there were only three furnaces in Jefferson County. All were operating on charcoal and the yearly capacity was given as 19,500 tons. It may be noted that some modern furnaces can produce in one month as much as these three could make in a whole year. In 1880 all three of the earlier furnaces had disappeared and three new ones had taken their places, one being still under construction. The rated capacity of the two in operation was 30,000 tons. Coke was the fuel, although in the earlier days one of these furnaces had used charcoal. It will be noted that the average capacity per furnace had gone up from 6500 tons to 15,000 tons per year, or from 18 tons to 41 tons per day.

Years of Growth

Great expansion took place in the next decade, for 1890 saw 24 furnaces, of which four still were building. The rated capacity of the 20 in operation was 738,000 tons per year, showing an average of 36,900 tons per furnace and of 101 tons per furnace per day. Further expansion in the next decade brought the total number

in 1900 to 29, of which one was under construction. The yearly capacity of the 28 in service was 1,539,500 tons, or an average of 54,982 tons per year. This figures out at 151 tons per day per furnace.

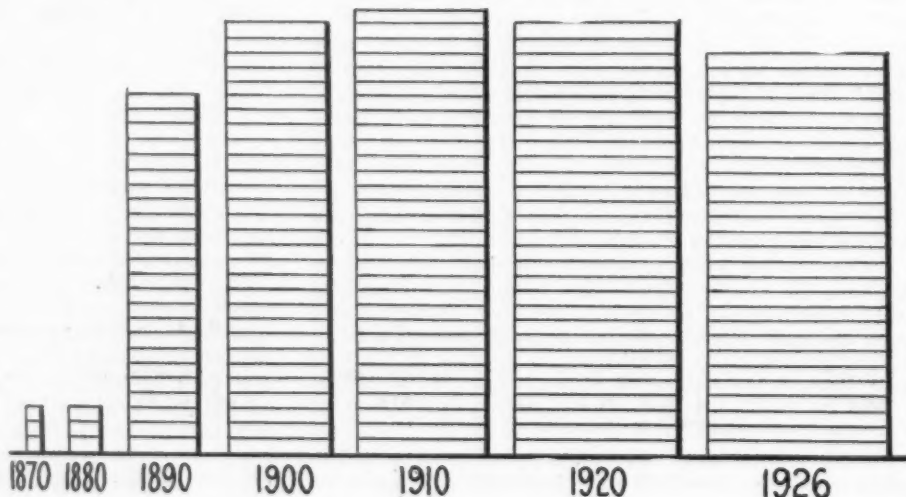
Many of the 1890 furnaces still existed in 1900, but in a number of such cases the capacity figure was higher in the later year, due to rebuilding or to improved methods of operation. Thus, the four Sloss-Sheffield furnaces had been increased in rating from 140,000 to 225,000 tons, and other cases showed similar increments.

Increasing Size But Not Numbers

By 1910, while the number of furnaces had grown by only one unit to a total of 30, the capacity had gone up to 2,135,000 tons, representing an average of 71,167 tons per furnace and of 195 tons per furnace per day. Despite a drop to 29 furnaces in 1920, the total rated capacity showed a further 25 per cent increase to 2,685,200 tons. This represents an average of 92,593 tons per furnace and of 254 tons per furnace-day.

Two furnaces disappeared between 1920 and 1926, leaving 27 now in service, with rated capacity again increased, to a total of 2,762,400 tons. The average is 102,311 tons per year or 280 tons per day for each furnace. Thus, in 56 years, the size of individual stack, in daily capacity, has gone up 15-fold.

BLAST Furnaces in Birmingham District. Each small area represents one furnace—three in 1870 and 27 in 1926. The width of each column shows relative capacity of furnaces—18 tons per day in 1870 and 280 tons in 1926. Thus the area of each column is proportional to total furnace capacity of the district, at each date



Institute Discusses Ingots

British Metallurgists Hear Papers on Heterogeneity and Silicates in Steel—Carnegie Scholarship Awarded to American

(Special Correspondence)

LONDON, ENGLAND, June 4.—The postponed annual meeting of the Iron and Steel Institute was held yesterday and today. Sir Frederick Mills, the retiring president, announced the resignation, through ill-health, of Iltyd Williams, who had held the office of treasurer for many years. To mark his retirement Mr. Williams had provided a sum of £3,000 for the purpose of encouraging the younger members of the institute to contribute papers on practical subjects. A sub-committee was engaged in drawing up conditions under which those papers should be submitted. It was agreed to convey to Mr. Williams the appreciation of the institute for his work as treasurer over a long period of years and for his munificent gift.

The chairman inducted the newly-elected president, Sir W. Peter Rylands, into the chair. He mentioned that Sir Peter is well known in the industry as chairman of the British Iron and Steel Wire Association,

having held that position for 25 years. "That in itself is a sufficient recommendation, and indicates that Sir Peter knows all about the workings of the industry."

The Bessemer Medal

The next business was the presentation of the Bessemer gold medal to Sir Hugh Bell. "One might perhaps be inclined to feel that the honor was somewhat belated," said the chairman. "The name of Bell is a household word in the iron and steel industry; perhaps there is no name which is more associated with it than that of Bell. Sir Lothian Bell might be regarded as one of the most important pioneers of the industry in the North, and Sir Lothian himself had been the recipient of the first Bessemer medal in 1874. That was 52 years ago, and it is now proposed to place upon the roll of honor the name of Sir Lothian's most distinguished son, Sir Hugh Bell." Sir Hugh Bell briefly replied.

Defects in Steel Ingots Reviewed

FOR the first time in many years the president of the institute is not intimately associated with the actual manufacture of steel. Sir W. Peter Rylands is one of the leading wire manufacturers in Great Britain and, as a user of steel, he is more particularly concerned with its manipulation in a cold state. For the purpose of wire-drawing, certain steels which, before the war, could be brought from the continent of Europe, presented superior qualities to the products of British steel works. Sir Peter Rylands, in his presidential address, attributed this in part to the fact that British steel makers were rarely concerned with producing a material specially suitable for cold-working and he expressed the hope that this important requirement of steel would receive more careful consideration from British makers than was formerly the case.

The main feature of Sir Peter Rylands' address was the review of the past history of the steel industry. World production during the past 40 years has maintained a remarkable uniformity in the rate of increase, he said, and, but for the interruption in normal development caused by the war, world consumption of steel might today have exceeded 100,000,000 tons per year.

A chart prepared by Sir Peter showed the disturbing effect of the war. Two other important features shown by the chart are the extraordinary similarity of the total production of the United States and the Continent of Europe during the pre-war period; and secondly, the failure of Great Britain to maintain her position in relation to the United States and the Continent. Until the year 1890 the respective productions of Great Britain, the United States and the Continent of Europe were approximately the same at about 4,000,000 tons. Thereafter the production of steel in the United States and on the Continent grew with amazing rapidity, while the production of Great Britain increased, but at a rate in no way comparable with the general increase in the world demand.

Present Trend of Industry

The conclusion which Sir Peter Rylands drew from his chart is that the pre-war rate of expansion of the world's consumption has been approximately restored and he suggested that, in the next ten years, an expansion even to the extent of 30,000,000 tons is a reasonable anticipation.

Sir Peter expressed profound anxiety as to the present trend of British production. With the great

increase in British steel-making plants, he urged that it is now essential that British steel manufacturers endeavor to secure a greater share of the heavy competitive trade, otherwise, without a serious reduction in productive capacity, the conditions of the British steel industry may be difficult for many years to come. He examined two important factors which developed the industry both in the United States and Germany; the first, the protection of the home market by tariffs, and the second, internal organization. Leaving aside the question of tariffs, he argued that, in regard to the future of the British steel industry, the dominant factor must be internal organization. Sir Peter pleaded for the problem to be approached from the broadest point of view.

Discussion

Sir Robert Hadfield said he was glad to note that the president had confirmed an estimate which he had made in his own presidential address of many years ago—that the steel production of the world would very shortly reach 100,000,000 tons. In considering that large tonnage, it should be borne in mind that it really indicates a very much larger quantity because a ton of steel now possesses much more efficiency in that included in it are special steels which take the place of a much larger weight of ordinary steel. One admirable thing about the address, he continued, was that the president had not lost his head. "Everyone knows that the industry is suffering from a great depression, but instead of giving an address of a depressing character, the president delivered a highly sensible and optimistic one. He stated that the industry could look forward to a bright future; and personally he could not help thinking that this would be so. When the end of the present terrible troubles comes, there is no doubt that this country will have a great future in the production of iron and steel."

Heterogeneity of Steel Ingots

A REPORT on the degree and nature of the heterogeneity found in carbon steel ingots was presented by a special committee appointed for the purpose of studying this subject. Dr. W. H. Hatfield is chairman of this committee and J. H. S. Dickenson, vice-chairman.

The report does not suggest changes in the process of manufacture with a view to modifying the degree of heterogeneity, but it indicates the degree

which may reasonably be expected in ingots, representative of the present state of steel manufacture. Segregation of all compounds, originally associated in or with liquid steel, may be expected to occur, but the study of the varying concentration of one element as compared with another does not indicate a quantitative relationship. It is established that some segregation, especially of carbon, sulphur and phosphorus, takes place in ingots of all the various sizes and types considered, but it is also clearly shown that the degree of heterogeneity is more pronounced in the larger ingots. The degree of heterogeneity is almost negligible for manganese and silicon.

Discussion

J. H. S. Dickenson, speaking as a member of the committee which made the report, said that today, as for many years past, the tendency has been to use larger and larger forgings, and to expect more from steel. The specifications as used by engineers, particularly for heavy work, are being continually tightened and added to by methods which were not dreamed of a few years ago. The tests now employed make the testing of a forging a much more serious business. It is not asserted that any one of the ingots spoken of in the report is the most perfect ingot that could be produced by the firm which made it, but what the committee said is that each one of these ingots is the sort of ingot which represents existing modern practice and upon which engineers must base their designs. He believed that very many engineers today design their structures on the assumption that steel is a homogeneous body; their calculations are carried out on that assumption and they make little or no allowance for all the various things that happen during the making of a steel ingot. The report is intended to draw the attention of engineers to the difficulties which the steel industry is up against.

E. H. Saniter said that the heterogeneity of large ingots is due to two causes, the differences in crystallization and the segregation of metallic and non-metallic compounds. Very material segregation must take place in steel used for high-class products. The thing to do is to make the steel in the very best possible way and of the greatest possible purity. With regard to segregation, this is a complex subject and one which requires a great amount of investigation.

Question of Soundness

Sir Robert Hadfield considered that insufficient attention had been paid to the respective characteristics of the different materials from the point of view of their soundness. This soundness has great influence on the after-behavior of the steel. He exhibited some specimens, all from the same heat of steel, and showed that apparently steel, which is absolutely all right, when poured into a green sand mold develops an undesirable character which he showed in his examples. One might have steel which is apparently perfectly sound, and fulfills the ordinary tests which were made, but if that steel were examined more minutely, it would be found that there are characteristics in the steel which would afterward develop segregation troubles, and segregation troubles often mean in the end those terrible apparitions which were known as "ghost" lines and which the Psychological Research Society had as yet not investigated!

Cosmo Jones said that what is wanted at the present stage is not so much discussion as a critical study of the report itself, which should be done at leisure. He emphasized the point that all these various ingots, with their alarming differences of composition, were made by people who had specialized in making high-class special steels. Steel is evidently a series of very complex solutions.

Harry Brearley said that the amount of work involved in ingots of this character is very great and, in a special sense, the thanks of the institute are due to the committee and to the steelmakers who assisted them. Sir William Ellis had said that what was presented is a picture of how nature works during the solidification of an ingot. That, the speaker thought, is the broad effect that should be taken account of by

those persons or committees who draw up specifications of the acceptance of large forgings from big ingots. The fact that specifications said that casts should not appear in a large ingot did not make it possible for a steelmaker to make a large forging which contained no ingots. What the steelmaker could do was to push the position of the casts about. By experience such a steelmaker found it advisable to arrange that the casts should occupy a rather deeper position in the ingot and therefore one likely to be less visible when the forging was put before an inspector!

Cooperative Research

Dr. Walter Rosenhain welcomed the report as an example of cooperative research carried out by steelmakers, which had been put forward as propaganda for inducing the engineer to modify his apparently unreasonable requirements. The speaker had no doubt whatever that the requirements, perhaps not of engineers, but of some inspectors, are sometimes unreasonable. Nevertheless, the steelmaker has to take into account the necessities of the engineer. It is all very well to speak comfortably of the laws of nature, but what has been demonstrated in the report are not the laws of nature but the phenomena which resulted from those laws in particular circumstances, and it is only when those laws are known, and the circumstances under which they are allowed to operate are known, that the steelmaker can secure control of, for example, the formation of these segregates. The conclusion to be drawn from the report is that the steel-making committee does not know enough about these phenomena.

Prof. Cecil H. Desch said that the results testified to the great improvement in the quality of the ingots which had been brought about in recent years by the adoption of better methods of casting. "One's first impression on reading the report is that the variation in the concentration of sulphur and phosphorus in different parts of the ingots is less than might have been expected. Much greater variations are shown by the ingots described by Mr. Talbot in 1913, and by the American committee which reported to the International Association for Testing Materials in 1912. The casting of ingots with hot tops had the effect of lessening the extent of the segregation throughout the ingot as well as of increasing the fraction of the ingot which consisted of sound steel."

Silicates in Steel Ingots

THE distribution of silicates in steel ingots, made by the acid open-hearth and the electric processes, was discussed by J. H. S. Dickenson. In both cases the steel was deoxidized in the furnace with the object of producing perfectly sound ingots, suitable for the manufacture of forgings required to comply with exacting specifications and rigorous inspection. A definite similarity in the distribution of slaggy particles was shown. The percentage of slaggy matter in the form of small globular silicate particles rose to a maximum in the central, lower part of the ingots, precisely where carbon, sulphur, and phosphorus were each reduced to a minimum by segregation. This applied to quite small as well as to very large ingots, to ingots of carbon, nickel and nickel-chromium steels and to top-cast and bottom-cast ingots.

It was further found that in this region, which lay a little above the floor of columnar crystals, and within the pyramid of light-etching free crystals erected upon this floor, the silicates were not only greater in amount, but the separated residues included a considerable proportion of globules which were larger than those normally to be found in the other part of the ingot.

Discussion

Doctor McCance, referring to the globular nature of the silicate inclusions in the ingot form, asked the author if he was certain that the method of attack, with increasing strength of nitric acid, did not dissolve out some of the higher oxide inclusions? His reason was that, from the analyses of many inclusions which he had come across, he had always found that

the silica in the inclusion was lower than the figure which the author gave, the most general figure being about 30 to 40 per cent. He had not yet come across any inclusions with so high a content of silicate as 70 per cent, and he wondered whether the author had made any check experiments in order to insure that the method of acid attack which he had used had not perhaps exerted some solvent action on certain of the silicates.

Important Step Forward

Doctor Rosenhain said that the paper marked a most important step forward in a knowledge of these somewhat elusive non-metallic inclosures, or at any rate of one group of those inclosures, because the sulphides are at least as important as the silicates in this respect. That brought him at once to one of the points which had occurred to him in reading the paper, namely, that in observing the non-metallic inclosures in ordinary steel articles—forging or rolled material—one generally found the sulphides and silicate inclosures associated. One found them lying in the same bands in the banded structure of the steel. Apparently the sulphur segregation was quite a different thing from this arrangement of the silicates in the ingot; and it was just a little difficult to see how, if that were so, the apparent association of the two kinds of inclosures in wrought material came about.

What is really the origin of those silicates? asked Doctor Rosenhain. He thought Doctor Stead's work showed that fairly clearly. At any rate in part they are due to the presence of oxygen in the steel. There was silicon; obviously there was iron and manganese, and when there was oxygen as well, there were the necessary materials for the production of those silicates.

Doctor Hatfield said the paper was undoubtedly an extremely valuable one, and the author's procedure of investigating the isolation and nature of the inclosures was quite a contribution to present knowledge of the subject. No doubt all investigators would use and apply the process generally; in fact, since the author had published the paper, his own laboratory had commenced to do work on similar lines. With regard to the results obtained by using the process, the matter was different, and he was very much in sympathy with what Doctor Rosenhain had had to say.

Harry Brearley said that, in the "heterogeneity of steel ingots" report, there was some suggestion that solid steel might not be heavier than liquid steel. That was one of the most surprising suggestions contained in the whole of the report. Unless the solid steel was specifically heavier than the liquid steel, free crystals could not possibly fall to the bottom. It seemed to him that whoever had cast a steel ingot and noticed that during the solidification it piped, that is to say, it shrunk and occupied less volume than it did in its

liquid condition, must be convinced that in the solid state it was heavier than it was in the liquid state. There was one other suggestion which Mr. Brearley said he would like to make, which arose rather out of general experience than any personal work which one had done on the lines which had been followed by the author. If one were to take mild steels and machine them into bars, or anything else, and carefully observe the machined and ground, or ground and polished, surfaces, they would see here and there the appearance of the streak which the author had separated. When steel ingots were made under something like comparable conditions the number of streaks of a size which was visible to the naked eye was greater in mild steels than it was in harder steels. In a steel, for example, containing about 0.20 per cent carbon, and taking that rough measure of the occurrence of the slack streak—that is to say, its visibility to the naked eye—about ten times as many streaks would be found in a steel containing about 0.20 per cent carbon as would be found in a steel containing about 1 per cent carbon.

Inclusions Other Than Silicates

Mr. Whiteley remarked that the late Doctor Stead had suggested that some of the non-metallic inclusions might really be other things besides silicates, his suggestion being that, in the case of basic steel, ferrite of lime might be present. He was personally inclined to that opinion himself, because in one particular case the piece of plate he had been examining, made of basic steel, contained excessive amounts of non-metallic impurities. On testing for silicates he could not find any. They appeared to be silicates, and yet they were soluble in very weak acids.

Mr. Dickenson, in reply, referred to the possibility of some silicates or some oxides in the steel being dissolved by the weak nitric acid used. He had always had that possibility in mind. It was one which nobody would overlook, but so far as he had been able to see by the examination of the residues under the microscope, there was no evidence of partial solution. The little globules, as they were seen on the slip, looked perfectly smooth and clear. They did not give any evidence of attack, and he considered from those observations that, so far as regarded the silicates he had separated, there had been no partial solution of them.

Carnegie Scholarships

It was announced at the meeting on Friday, June 4, that a Carnegie Scholarship, value £100, had been awarded to V. N. Krivobok, who is engaged in the bureau of metallurgical research, Carnegie Institute of Technology, Pittsburgh, to enable him to carry out a photomicrographic study of recrystallization of metals after cold working.

New Insulating Ceramic

Isolantite, a new ceramic material, goes back to the days of the World War, when the French air service, hard pressed for suitable spark plugs to take the place of former German products, endeavored to find an insulating material for spark plug cores.

As with all ceramics, isolantite starts from a raw material which is shaped and fired to convert it into a hard and lasting material. Whatever machining or cutting must be done to a piece of isolantite must necessarily take place prior to firing.

The mineral product is pulverized and poured into a mold and set in a powerful hydraulic press. A pressure of 25 tons to the sq. in. is applied. In the presence of a gas catalyst, passed through the loose powder just prior to compression, the powder particles form a solid mass. Under the pressures the material is molded into round or square rods. Rods of 1/16 in. to 10 in. in diameter may be thus formed. Also, tubes

1/16 in. up, with pin-holes up to holes almost as large as the external diameter, may be formed by automatic extrusion presses.

Round rods may be formed into shells or posts in much the same manner as turning a piece of brass or steel rod in a lathe. Automatic guides and pantograph copying lathes and automatic stops may also be employed. Tolerances of hundredths of an inch are met, it is stated, in ordinary routine work, while precise tolerances of thousandths of an inch are met by lapping and grinding, as in standard machine practice. The material may be drilled and tapped.

With the machining operations completed, the isolantite pieces in carborundum trays or "saggers" are placed on the hearth of a gas-fired furnace and heated to 1500 deg. (2700 deg. Fahr.).

Held there for 60 sec., the material suddenly becomes hard and may then be taken out into the air with little delay.

Keeping Faith with Tradition

Mr. and Mrs. S. A. Andrew Beneath the Solid Stone Arch at



Entrance to Heat Treating Room of the Eagle Iron Works

And How It Has Paid the Oldest Anvil Manufacturer in the Country to Mix Sentiment with Business

BY PRENTICE WINCHELL

IN the Scottish border town of Gretna Green there stands a famous anvil—that same block of metal before which countless couples have been joined in wedlock by the renowned “marrying blacksmith.” That anvil is surrounded by sentimental memories and romantic fancies. Gretna Green is no longer a haven for runaway couples and the anvil rests on its traditions.

But there are other anvils, nearer home, which have the flavor of sentiment about them—anvils which contain as a basic ingredient, in addition to the iron, a generous mixture of old-fashioned loyalty to a tradition. It is not customary to mention iron and sentiment in the same breath. The metal trades may be thought to contain much of the hard and unyielding characteristics of the materials with which they work. But down in Trenton, N. J., there is a business which still casts its anvils of an equal part of iron and faith in a splendid tradition.

When Mark Fisher came down from the Maine settlements in 1840 to start an anvil shop in Trenton, he brought with him many of the inflexible principles of his Puritan forebears. There was to be no compromise with quality. Inferior materials were not to be considered even though the temptation to effect a saving might be great. He made the best anvils he knew how to make and, as he worked and learned, he made ever better anvils.

That was 86 years ago, but still the *Eagle* trademark goes annually to every quarter of the globe. It has not been an easy thing to maintain—this indefinable sense of loyalty to a fine tradition. Mass production, quick profits, dividend requirements, competitive pressure, production short-cuts that save a little without the customer noticing any difference in the product—these and other factors have exerted their influence on the Fisher & Norris plant as on others. The pressure has been increasingly great in recent years, and it may be wondered how the old traditions have been upheld so well in these modern days of change, substitution and fast turnover.

Most of the credit for this keeping faith with a business can be traced to the present owner, who is, curiously enough, a woman. Women have entered many fields of endeavor since our grandmother's time, but it would take a long search to discover a woman

who has accomplished as much as Mrs. Harriet Fisher Andrew, “boss of the shop” at Trenton.

Catapulted into the business without any warning through the serious illness of her husband at a critical moment in the company's affairs, this remarkable woman set herself the task of learning every step in the business of manufacturing anvils and vises—from the foundry to the morning mail. The story of her struggles during the first days when she had assumed the responsibility for the operation of a metal-working plant with no knowledge of the business would make material for the scenario artists on a moving picture lot. Let her tell part of the story in her own words:

“I shall never forget the effect my first appearance in the foundry as a real boss had on the men at work there. Some gave me a quizzical look, others turned their heads and smiled, some paid no attention to me at all but seemed to look through me as though I had been an atom of dust.

“I confess this treatment somewhat disturbed me, for I felt that I was of great importance and rather expected them to stand aside and admire every move I made.

“While passing through the grinding shop one day, I stopped to watch the men at work. The anvils, weighing in cases as much as 1000 lb., are let down through a hole in the floor with a rope and pulley into the grinding room below. Three men were at work at this time, each making an effort to lift a very heavy anvil, weighing, as I recollect, about 600 lb.

“They would strain awhile and then stop and chatter. I stopped and asked what the trouble was. One made a grab at the rope, but anticipating what he was about to do, I took the rope myself and gave orders for them to stand aside. I have always prided myself on being able to handle a pair and even four horses, so I grasped the rope and let the anvil down.

“Of course, after it got started the momentum of the anvil required very little strength on my part, except to hang on and see that it did not go down too fast. When the anvil was safely landed on the floor below, I expected to see looks of astonishment and hear words of praise, and my surprise can be imagined as I heard one man say to another, ‘Poor Mr. Fisher!’

“On recounting the story to Mr. Fisher, he laughed

heartily and said, 'You did not understand them. They realize that if their wives were so strong, they would get a beating and their idea of your strength was that I probably would receive a beating at your hands.'"

But all the early difficulties did not pass over as simply as this.

In 1900, for example, when Mrs. Fisher came to the aid of her husband, determined to uphold the traditions of quality which had built up the reputation of *Eagle* anvils, a foreman who had been with the shop for some 30 years suddenly quit the job in protest at having "a woman for a boss." Mrs. Fisher came down to the plant one rainy spring morning to discover that the angry Delaware River had overflowed its banks and inundated the first floor of the plant, that the men had quit, in sympathy with the foreman, and that the production was nil. It would not be fair to say that she was not discouraged, but she did get the water out of the plant, the men back at their jobs and the wheels turning again, in short order. Moreover, she uncovered discrepancies in the accounts of the foreman which indicated that perhaps his defection was due quite as much to a fear of unpleasant discoveries as to objection at having a woman for a boss.

She has had no labor troubles in 26 years of shop operation. She will not tolerate a union or deal with organizers. She did have a crisis some years ago when an accident to the cupola caused men to leave their posts just when they were most needed. Her method was simplicity itself. She stayed on the job, in the face of danger, thus shaming the deserters. And she told those who were on the point of running out of the shop: "If you leave, don't ever dare to show your faces in here again." The men stayed.

Her experiences in the plant have covered every operation from molding an anvil on the floor to charging the cupola. She can still calculate the proper charge and tell what is the matter with a casting if there is anything wrong.

She has been instrumental in making many modern improvements in method and equipment. When at Fore River in 1908 she saw one of the first pneumatic chippers in operation and forthwith ordered one for the shop at Trenton. Pneumatic chippers are now standard equipment.

Mrs. Andrew has been greatly aided in recent years by the engineering skill and ingenuity of S. A. Andrew, her present husband. Under his direction new Strong-Carlisle heat-treating furnaces have been installed, a

new type of grinding machine developed for quantity production and many improvements made in plant design.

Mrs. Andrew does not recommend the foundry as a place for women. She has heard many men say that the foundry is no place for a woman, and, speaking candidly, she agrees. In her own case, the emergency made the step necessary, and the fact that her company still does a large business in anvils seems to prove that she has kept the faith well.

In the fourteenth and fifteenth centuries, said Mrs. Andrew, "anvils were so valued that they were ornamented with gold, silver and every kind of precious stone. Only the armorers were allowed to work on the anvils and vises." Gold and silver have gone out of fashion as anvil ornaments, but those made in Trenton are still inlaid with sentiment and molded with loyalty to old and tried traditions.

Celebrates Twenty-fifth Anniversary with Building Program

Twenty-five years ago, May 1, the Heil Co., maker of tanks, dump bodies and hoists for motor trucks, came into being in a little frame structure on Fourth and Poplar Streets, Milwaukee. Today the company has completed a building program which includes a new office, power house and shops, and there is now under construction a new hoist shop 100 x 300 ft. in plan. The plant itself covers some 200,000 sq. ft. of ground floor space. Machinery has been installed for the manufacture of steel dump bodies, welded compartment, and storage tanks and hydraulic hoists.

The president of the Heil Co. is Clement C. Smith and the vice-president and general manager is Julius P. Heil.

Celebrates 62 Years of Business

The Sixty and Two Convention of salesmen and representatives of Jenkins Brothers, manufacturers of valves and mechanical rubber goods, was held June 7, 8, 9 and 10 in commemoration of the sixty-second year of Jenkins Brothers' business. Representatives were present from Canada, England, Cuba and Mexico.

The program included meetings at the executive offices, 80 White Street, New York, trips through the bronze and iron valve factories of Jenkins Brothers at Bridgeport, Conn., and rubber division at Elizabeth, N. J. On June 9, a banquet at the Hotel Biltmore, New York, was tendered to over a hundred men of the organization, with Farnham Yardley, president, the toastmaster.

The Two Employees (at Left) Have Been 45 Years at This Hammer

Eagle Anvil in the Making (Below) Ready for the Tool Steel Face Plate



PAPERS FOR MATERIAL MEETING

Subjects Included in Program of Next Week's Gathering of Testing Engineers

The twenty-ninth annual meeting of the American Society for Testing Materials is to be held at Chalfonte-Haddon Hall, Atlantic City, next week, June 21 to 25. The first day and the morning of the second day will be devoted to committee meetings. The first general session will convene at 2 p. m. Tuesday, June 22, and will cover wrought iron, cast iron and magnetic testing. A steel session will be held on Wednesday morning, June 23. On the morning of Thursday, June 24, there will be a session on corrosion and fatigue of metals and, in the evening of the same day, a session on non-ferrous metals and metallography.

Some of the principal papers to be presented are listed below.

At the first session on wrought iron, cast iron and magnetic testing, three papers are scheduled as follows:

"A Study of the Relation Between Properties of Cast Iron Pipe, Tested Under Impact, Internal Pressure and Flexure, and the Corresponding Properties Found in Several Kinds of Test Specimens Taken Therefrom," by A. N. Talbot and F. E. Richart.

"A Note on the Relations Between the Proposed Standard Test Bar for Cast Iron and the Two Existing Standards," by J. T. MacKenzie.

"Magnetic Testing of Ball-Bearing Races," by Haakon Styrl.

At the second session on Tuesday evening, June 22, four papers are scheduled as follows:

"Effect of Size and Shape of Test Specimen on the Tensile Properties of Sheet Metals," by R. L. Templin.

"A New Mirror Type Extensometer," by M. F. Sayre.

"A New Twist Meter for Torsion Tests," by J. H. Smith.

"Can the Hardness of Materials Be Neglected in Granulometric Sieve Analysis?" by H. P. Hollnagel and E. A. Harty.

At the steel session on Wednesday morning, five papers are scheduled as follows:

"The Cause and Prevention of Embrittlement of Boiler Plate," by S. W. Parr and F. G. Straub.

"Methods of Test in Relation to Flow in Steels at Various Temperatures," by H. J. French.

"Compressive Strength and Deformation of Structural Steel and Cast Iron Shapes at Temperatures up to 950 Deg. C.," by S. H. Ingberg and P. D. Sale.

"Some Defects Which Have Been Found in Large Carbon-Vanadium Forgings," by O. B. Schultz.

"Strength of Welded Joints," by J. R. Dawson.

The first Edgar Marburg lecture will be delivered at 4 p. m., Wednesday, June 23, by Arthur N. Talbot, honorary member and past president of the society and professor in charge of theoretical and applied mechanics at the University of Illinois. The regular informal dance and smoker will be held on the evening of the same day.

Committees for Steel Treaters' Convention and Exhibition

The committees for the eighth annual steel and machine tool exposition of the American Society for Steel Treating to be held in Chicago the week of Sept. 20 have been organized by the Chicago chapter of the society. T. B. Purcell, vice-president Peoples Gas, Light & Coke Co., has been made general chairman of the convention committees, with Robert G. Guthrie, of the same company, as vice-chairman. These two men will be assisted by J. Fletcher Harper, Allis-Chalmers Mfg. Co., Milwaukee, and by Arthur G. Henry, Danly Machine Specialties, Inc., Chicago.

The chairmen of the various sub-committees are as follows: Finance, S. M. Havens, Ingalls-Shepard Division, Wyman Gordon Co., Harvey, Ill.; men's entertainment, William R. Mau, Vanadium Alloys Steel Co.; ladies' entertainment, E. M. Converse, Dearborn

Chemical Co.; information, W. E. Williams, Metal Lubricants Co.; transportation, H. Hardwicke, Atlas Steel Corporation; plant inspection, T. E. Barker, Accurate Steel Treating Co.; hotels, P. G. B. Morriss, Drake Hotel, and on the exposition, E. Von Hambach, Boyle Valve Co.

To Have Charge of the Foundrymen's Convention in Detroit

Several important committees have been appointed to take care of the arrangements for the annual convention and exhibition of the American Foundrymen's Association to be held in Detroit the week of Sept. 27. The chairmen of the principal committees thus far appointed are as follows: Entertainment, W. J. Cluff, F. B. Stevens Co.; plant visitation, H. M. Lane, H. M. Lane Co.; hotels, Wm. J. Muhltner, Great Lakes Foundry Sand Co.; publicity, J. J. Boland, Griffin Wheel Co. Each committee has two vice-chairmen and a large number of members from various companies in Detroit.

The chairman of the ladies' committee is J. L. Mahon, American Car & Foundry Co., with Mrs. Lucia V. Grimes as vice-chairman. The chairman of the transportation committee is W. R. Thompson, Warner R. Thompson Co. A reception committee has been appointed with C. M. Culver, Employers' Association of Detroit, as chairman. Fred Erb, of the Erb-Joyce Foundry Co., has charge of arrangements for golf.

Philadelphia Foundrymen Elect Officers

Walter Wood, head of R. D. Wood & Co., Philadelphia, cast iron pipe manufacturers, was elected president of the Philadelphia Foundrymen's Association at its annual meeting June 9. Mr. Wood had been chairman of the executive committee of the association for 35 years. Other officers elected were: Vice-president, C. F. Hopkins, Ajax Metal Co.; treasurer, W. G. Summers, assistant purchasing agent Phoenix Iron Co.; secretary, Howard Evans of J. W. Paxton Co.; directors, Frederick M. Devlin, Philadelphia Hardware & Malleable Iron Co.; C. R. Spare, Janney Cylinder Co.; H. M. Giles, Westinghouse Electric & Mfg. Co.; R. R. Belleville, Dixon Crucible Co.; W. L. Kalbach, The Christiana Machine Co., Christiana, Pa., and the Bond Foundry & Machine Co., Manheim, Pa., were elected active members. Oliver Smalley, Grand Central Terminal, New York, gave an illustrated address on foundry practice.

COMING MEETINGS

June

Society of Industrial Engineers. June 16 to 18. Thirteenth national convention. Bellevue-Stratford Hotel, Philadelphia. George C. Dent, 608 South Dearborn Street, Chicago, executive secretary.

National Industrial Advertisers' Association. June 19 to 24. Fifth Annual Convention, Atlanta Building, Philadelphia. W. S. Hays, c/o National Slate Association, Philadelphia, secretary.

American Society for Testing Materials. June 21 to 25. Annual meeting, Chalfonte-Haddon Hall Hotel, Atlantic City, N. J. C. L. Warwick, 1315 Spruce Street, Philadelphia, secretary.

American Society of Mechanical Engineers. June 28 to July 1. Spring meeting, Palace Hotel, San Francisco. Calvin W. Rice, 29 West Thirty-ninth Street, New York, secretary.

American Management Association. June 30 to July 2. Production Executives' Division, Silver Bay, Lake George, N. Y. W. J. Donald, 20 Vesey Street, New York, managing director.

PISTON DRILLING MACHINES

Range of Equipment for Drilling, Boring and Reaming Piston-Pin Holes of Automobile Cylinders

Three machines for use in drilling, boring and reaming the piston-pin holes of automobile cylinders have been brought out by the Hoefer Mfg. Co., Inc., Freeport, Ill. These machines, which are of high-production type, can be used on cast-iron or alloy pistons.

The smallest of the three machines is shown in Fig. 1. This unit is hand-operated, and is intended largely for the jobbing and replacement trade because of the economy with which the machine can be changed over from one size piston to another. In position No. 1, the piston is loaded in a four-position trunnion fixture, which locates the work from the same surfaces used in other operations. The proper relation between hole and the surface of the piston is thus maintained in the machining. In position No. 2 of the trunnion, the holes are rough drilled from each side, through guide bushings. In position No. 3 the hole is size bored straight through from one side with two single-point tools, spaced so that one finishes before the second begins. This corrects any error in drilling. The boring bar is amply piloted. In position No. 4 the hole is reamed, also straight through from one side, with a long pilot ahead of the reamer.

The throwing in of the power feed levers is done by hand after the operator has brought the various tools up to the work. The travel of the drills is short, each going through only one boss of the piston, and its feed is in proportion to the size of the drill in cast iron or alloy. The boring bar and the reamer travel through the entire bushing before the tools begin cutting. The speed of the boring tool and the reamer is correct for the type of tool in cast iron or alloy, while the feed is perhaps four times as fast as the drills in penetration per minute. Both the drills and the boring and reaming tools have automatic stops. The produc-

tion of this machine on the ordinary size pistons is from 60 to 75 per hr. They are machined within an accuracy of 0.001 in. square.

Fig. 2 shows a more automatic and much higher production piston driller. The general principle of operation is the same as the machine above, except that the feeding is by cam and therefore the operator has only to trip a lever and the cycle is completed and the tools returned to their starting position when the feed stops. The trunnion can be made either manually or automatically indexing, so as to leave the operator free to do nothing but load and unload the piston and trip the feed. The machine can be made to chamfer, as well as perform other operations. The production secured from the machine varies from 90 to 120 pistons drilled, bored and reamed per hour.

The third machine, shown in Fig. 3, is of the highest production type of the group, and is radically different from the two machines described above. The main units of this machine, which is entirely self-contained, consist of a base, trunnion, roller-bearing head and hydraulic unit.

The base on this machine is of very strong, ribbed construction and on it are mounted the two main standards on the right and left side of the machine respectively, supporting the 5-in. diameter main shaft. Mounted on this shaft at the extreme left side is the indexing trunnion on which are located the 16 holding fixtures. The main head is direct motor-driven with all roller bearing spindles and idlers. Tools are mounted on the various spindles through Oldham couplings, providing universal joint drive. A perforated pipe is mounted on the inside periphery of the head and, by means of a pump contained in the housing with the motor drive, a constant spray of oil is distributed all through the inside of the head.

The feed on this machine is furnished through a hydraulic pump driven by individual motor, both pump and motor being mounted on the main base. The cylinders for the feed are mounted parallel with the main shaft and just above the main driving motor, with the piston rods fastened directly to the main head. This

method of feed is particularly adapted for this work, due to its flexibility and ease of adjustment. At the same time it presents a factor of safety, since the oil would act as a sufficient cushion to prevent any damage to the machine should any solid object accidentally interfere with the forward travel of the head.

The indexing trunnion is divided into four units, each having four work-holding fixtures. Attached to the trunnion are four cams, which, upon rotation of the trunnion, trip a pin and automatically start the work cycle. This cycle is as follows: First, rapid approach; second, cutting speed; third, rapid reverse; and fourth, stop. Both rate of feed and the duration of each successive movement of the cycle are easily adjusted by the operator.

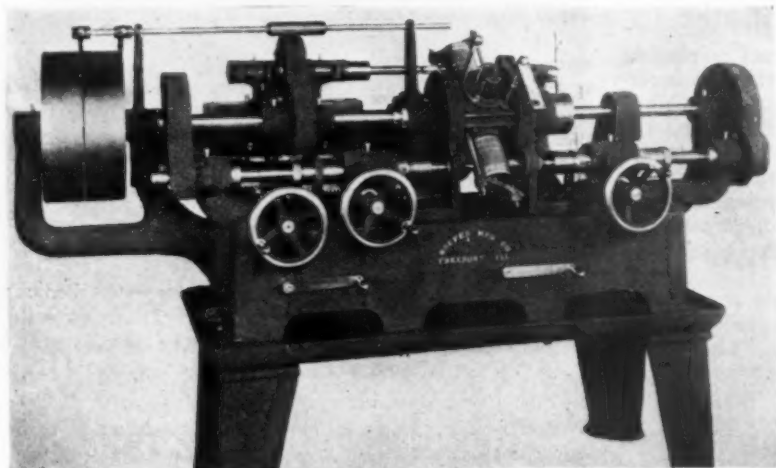


Fig. 1 — Hand-Operated Machine For Drilling, Boring and Reaming Piston Pin Holes. The economy with which machine can be changed over from one size piston to another is a feature

Fig. 2—Piston Driller in Which Feeding Is by Cam. The trunnion can be indexed either manually or automatically

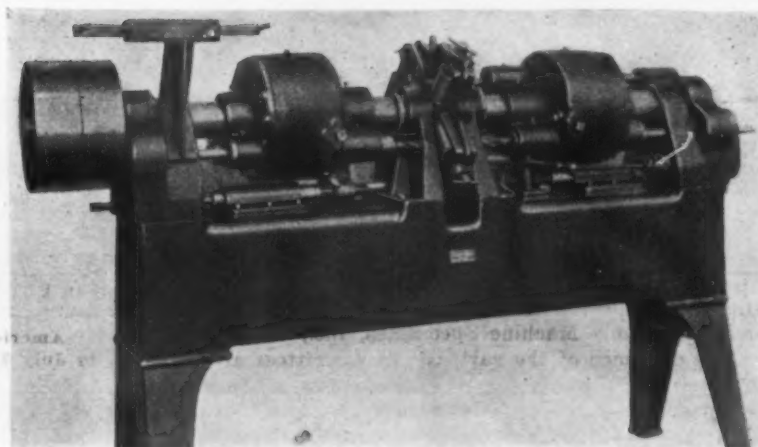
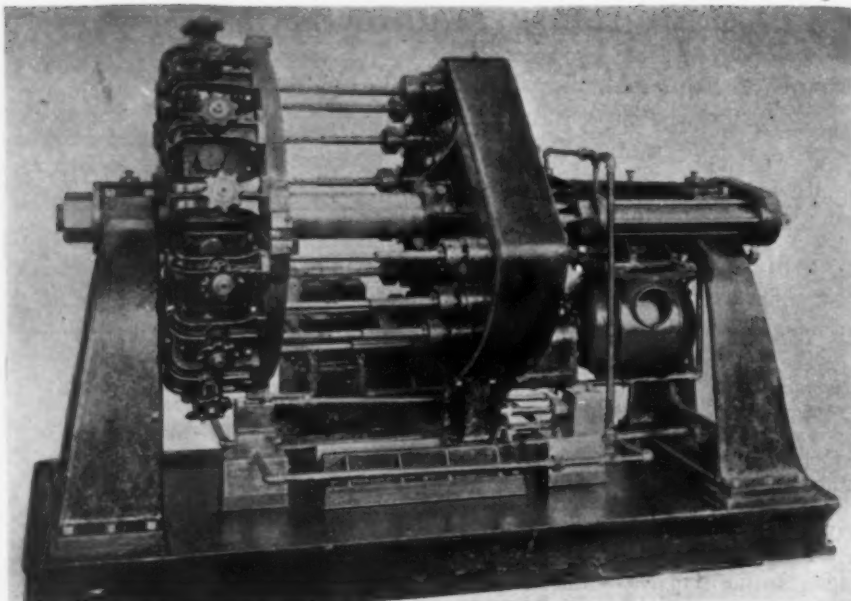


Fig. 3 — High-Production Piston Drilling Machine. The feed is furnished through a hydraulic pump driven by individual motor. Production ranges from 250 to 360 pistons an hour, bored, size-reamed and finish-reamed to an accuracy within 0.001 in.



The main head consists of three groups of four spindles each. The first group of four tools consists of four boring bars on which can be mounted either one or two cutting tools, depending upon the amount of metal to be removed. The second group of tools consists of four sizing reamers, and the last group of tools consists of four finishing reamers.

One of the most important features of this machine is that the different holding fixtures are wholly independent from the machine itself and in no way dependent upon the latter for alinement and accuracy. The fixtures are mounted on the trunnion on large centrally-located bosses and held in place by four screws each. Hardened and ground steel bushings are provided at

the two extreme ends of the fixtures and all cutting tools are ground to pilot in these two bushings. In view of the fact that the boring bars are driven through universal joints, they become a unit with the holding fixtures as soon as they have entered the guide bushings and the accuracy obtained in the work is, therefore, dependent only upon the accuracy of each individual fixture. Another advantage of this construction lies in the fact that, by merely changing fixtures and boring bars, any type or size of piston can be machined.

Depending upon the type of fixtures employed, an operator can take off the machine anywhere from 250 to 360 pistons per hour, bored, size-reamed and finish-reamed to an accuracy within 0.001 in.

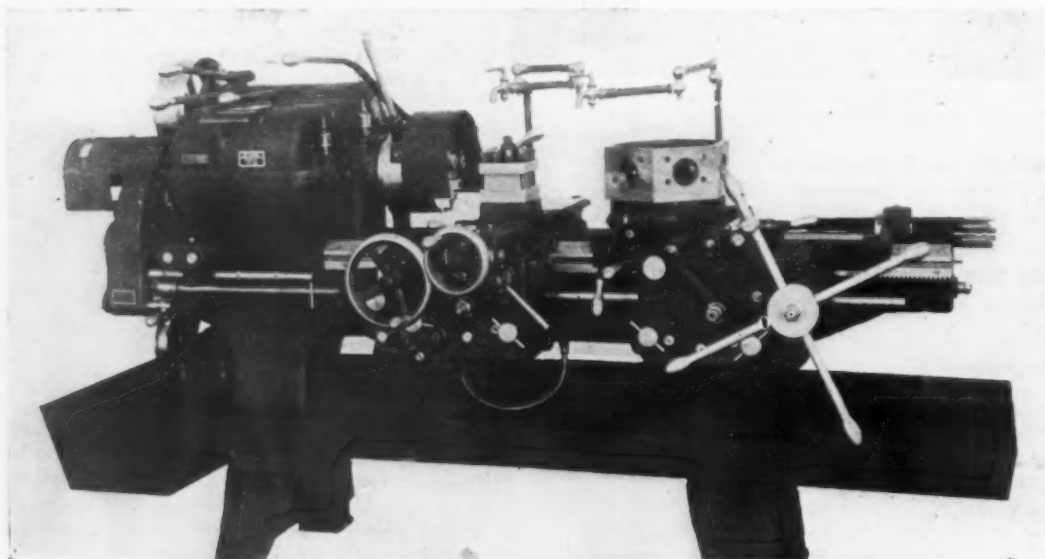
Improves Universal Turret Lathe

The Foster Machine Co., Elkhart, Ind., is placing on the market a new 1-B universal turret lathe incorporating improved features. The improvements include a split-ring type of binder for the hexagon turret; the addition of a power rapid-traverse unit to the turret slide, and lengthening of the bed to permit greater longitudinal feeding movements to the carriage and the turret slide. The swing over the ways and cross slide is also increased, providing greater chucking capacity than on the company's earlier machines.

The turret binder grips almost entirely around the turret on a large diameter. The same lever operating the turret binder releases the lock bolt. The power

rapid-traverse unit is mounted on the rear of the saddle and is controlled by a lever within easy reach of the operator. The return movement of the rapid-traverse can be automatically stopped at predetermined points. The clutches for operating this mechanism are of large diameter; the friction contact is bronze against close-grained cast iron. Through an interlocking mechanism the turnstile for traveling the turret slide by hand is disengaged automatically, and does not revolve under any movement forward or back, set up by the power rapid-traverse.

The cross-slide extends entirely across the bed and has an effective cross travel of 10 in. The square turret will carry a cutting tool past the center of the



Improved No. 1-B Universal Turret Lathe. New features include split-ring type of binder for hexagon turret and power rapid traverse for turret slide

spindle. A pad is provided at the rear of the cross-slide for mounting tools for operating the rear of the work. The swing over the cross-slide is $9\frac{1}{2}$ in. Twelve reversible power feed changes are obtainable for the cross movement. The longitudinal feeding movement to the carriage is 32 in. with 12 feed changes, these being independent of those for the turret saddle. Six adjustable independent stops, which may be indexed, are provided for automatically stopping the longitudinal feeding movements of the carriage.

The hexagon turret has 12 feed changes. The lock bolt is long and is located to give greatest support to the turret face carrying the tool in action. The turret is tapped for independent pipe lines to each face. Independent stop-screws are carried in a spool in the rear of the saddle and index in time with the turret faces. The stop-screws abut against a slidable stop, which is also adjustable and retained by a spring-locking key. This eliminates the necessity of lengthy adjustments of the stop-screws.

The spindle is a chromium-manganese forging,

heat treated, hardened and ground. The spindle nose has a large diameter of thread, a large diameter pilot and short overhang. The diameter of the hole through the spindle is $2\frac{1}{4}$ in. The gears in the head are of steel, and run in a bath of oil. Through the gear combinations effected by the movement of four levers, 12 spindle speeds are obtainable. These are reversible and range in geometrical progression from 20 to 480 r.p.m. The automatic chuck is of the master collet type with a capacity of 2 in. round stock. The final closing action to the collet is effected through the principle of toggle action. The mechanism can be supplied for either draw-in or push-out type collets.

The bed is of the double girder type and is cast integral with the head. The swing over the bed is 17 in. The drive may be either from a countershaft or direct from a motor mounted on the rear of the leg, or on top of the head. A 5-hp. 1200-r.p.m. motor is recommended. A threading attachment of the leader-and-follower type can be supplied and also a taper attachment capable of turning tapers up to 3 in. per ft.

New Tier-Lift Industrial Truck

Compactness is a feature of a new tier-lift machine which is being placed on the market by the Wright-Hibbard Industrial Electric Truck Co., Inc., Phelps,



One Motor Supplies Power for Both the Elevating and Traveling

N. Y. Because of its compactness, the machine may be used in narrow aisles and in congested places. An important feature of the machine is that one motor supplies the power for both the elevating and traveling, one or the other function deriving power by means of a simple gear shift.

The machine is rated as having a capacity of 4000 lb. Without a load, the truck elevates 5 ft. in 18 sec. and lowers in 15 sec. With a 2-ton load, it elevates 5 ft. in 40 sec. and lowers through 5 ft. in 10 sec. The machine is 81 in. long and $21\frac{1}{2}$ in. wide, overall. The platform regularly furnished is 18 in. wide, 42 in. long and $6\frac{1}{2}$ in. high from the floor in the lowered position. A platform 24 in. by 53 in. by 9 in. high in the lowered position can be furnished also. The drive wheel tires are 14 in. by $3\frac{1}{2}$ in. and the tires underneath the platform are 6 in. by 4 in. The tires on the 24 x 54 x 9-in. platform are $8\frac{1}{2}$ in. by 4 in. The overall height with a 5-ft. lift is $6\frac{1}{2}$ ft.; with a 6-ft. lift, one foot higher. The battery equipment is a 6-cell, 21-plate Ironclad Exide or 12 cells of A-8 Edison.

The R11 or R12 elevating platform trucks built by

the company and now in use may be converted conveniently into a tier-lift truck. The tiering machine, on the other hand, can be converted with equal facility into a regular elevating platform truck if desired.

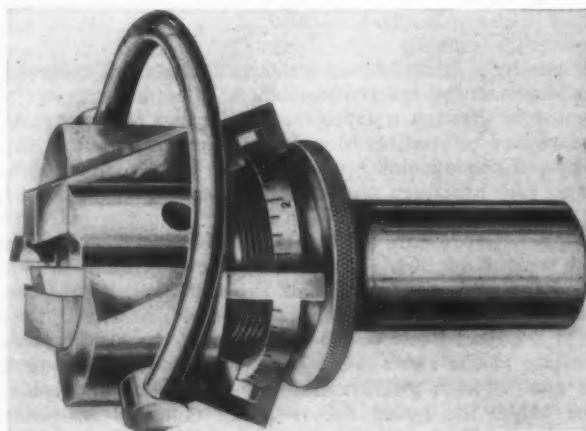
Laboratory Sand Mixer

A laboratory size Simpson intensive sand mixer is being marketed by the National Engineering Co., Chicago. It is built along the same lines as the larger size used for preparation of core, facing and backing sand. This mixer is intended to be of great help to those interested in sand preparation, reclamation and control, as the results obtained in the laboratory with the small mixer can be put into practice by the use of the larger sized mixers in the foundry.

The machine is sold complete with motor, weighs approximately 400 lb., will mix a batch of from 8 to 15 lb. of sand, and is so designed that it can be taken apart and cleaned in a few minutes. The overall length, including motor, is 34 in.; width, 20 in., and height 20.5 in.

Adjustable Hollow Mill

Convenience in moving, locking and releasing the blades is claimed for the adjustable hollow mill here illustrated, which is being marketed by the Reisinger Machine Tool Corporation, Rochester, N. Y. Six sizes, covering a cutting range from $1/16$ to $2\frac{1}{2}$ in. are available.



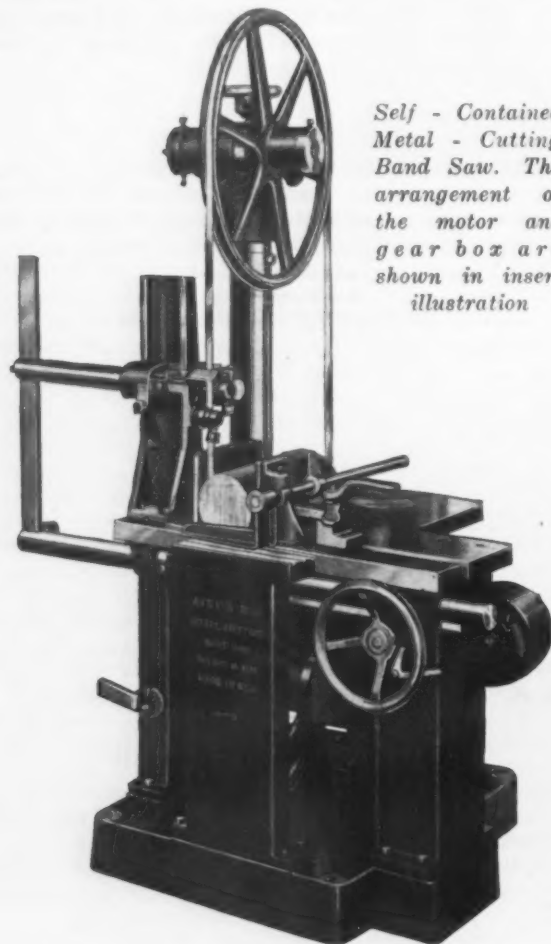
No wrenches are required to set the blades of the tool, the four blades being set backward or forward conveniently and to the exact adjustment required, by turning the graduated dial mounted as shown. Locking or releasing of all the blades is accomplished through a single-action locking lever. The body of the tool is of cold rolled steel, and the blades of carbon steel or high-speed steel as desired.

New Metal-Cutting Band Saw

Economy of operation is claimed for the metal-cutting band saw machine here illustrated, which has been added to the line of E. C. Atkins & Co., Indianapolis. Simplicity of design, rigidity of construction and provision for straight-cutting are features stressed.

The machine is designated as the No. 4 and is intended for cutting steel bars, pipe, structural shapes, rails, castings and other material. Its capacity is for square cuts of sections up to 12 by 18 in. Machine steel is said to be cut at the rate of 2 sq. in. per min. and tool steel at the rate of 1 to 1½ in. per min., depending upon its hardness and toughness.

The table on which the stock is held measures 13 by 32 in., and is 28 in. from the floor. The machine is



Self - Contained Metal - Cutting Band Saw. The arrangement of the motor and gear box are shown in insert illustration

driven by a ¾-hp. motor which is mounted at the rear, as shown in the insert illustration. The drive from the motor is through a three-speed gear box, the gears in which are of steel, hardened, and run in oil. Rotating parts of the machine are mounted in ball or roller bearings. All units are accessible for cleaning.

The saw blade is fed by gravity into the material being cut, pressure of the blade being determined by the weight applied. The feed can be controlled to suit the kind and cross section of the stock being cut. An advantage claimed for the gravity-fed machine is that it will adjust itself to the variation in the hardness or density of the stock being cut. The blade is arranged to run between guide rollers located above and below the table, the guide rollers being mounted in roller bearings. These rollers serve to keep the blade straight so that cuts can be made with a variation of only a few thousandths of an inch. The blade is kept tensioned by means of the handwheel on the top of the column. It is said to remove a kerf of only 0.040 in., and in requiring little allowance for finishing the pieces being cut, the machine may be used economically in cutting high-priced steels. The machine is arranged so that stock may be changed quickly. One man can

operate this saw and do other work, or one man can operate a battery of the machines.

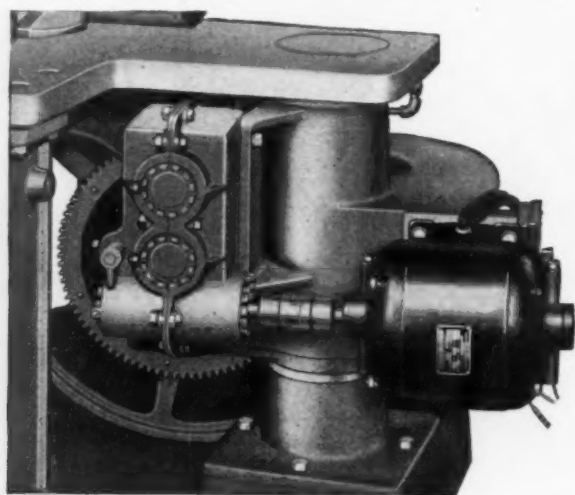
The floor space required is 36 in. by 50 in., and the height of the machine, overall, is 74 in. The weight is 1500 lb.

To Reduce Varieties of Trap Screw Ferrules

WASHINGTON, June 15.—Appointment of a committee on simplified practice to make a survey of the varying factors entailed in the use of trap screw ferrules was decided upon through a resolution adopted at a meeting here on June 9, under the auspices of the Division of Simplified Practice, Department of Commerce, participated in by representatives of plumbing equipment manufacturers. It was stated that 20 companies making this product were in favor of a reduction in the number of varieties.

Changes in Character of Iron at Comparatively Low Temperatures

An investigation has recently been carried out at the Bureau of Standards to check out a transformation reported to occur in iron at 698 deg. Fahr., that is, at a temperature considerably below the well-known transformations upon which the art of heat treatment of steel is based. In brief, the results of the investigation did not confirm the existence of the reported transformation, although they did indicate an "irregularity"



in the thermal characteristics of iron as shown occasionally in thermal analysis and thermal expansion runs.

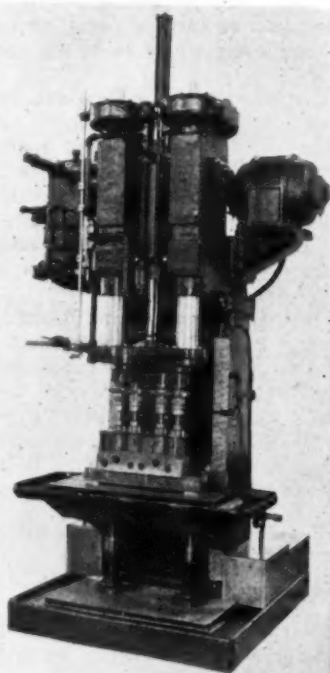
This "irregularity" appears in the thermal analysis run as an evolution of heat on heating and is best shown in iron having an appreciable oxide content, after treatment of the iron with hydrogen at a high temperature. The presence of hydrogen as such, in the iron, does not appear to be the cause of the phenomenon. Iron charged with hydrogen, by being made the cathode of an electrolytic cell, behaved irregularly upon heating, but in an entirely different manner from that associated with the reported polymorphic transformation. A suggested explanation of the irregularity in the thermal characteristics is the recrystallization upon heating of very fine grained iron formed by the reduction of oxide by hydrogen. X-ray examination indicated a much finer grain for iron formed in this manner than for ordinary iron.

The practical value of the work lies in showing the physical metallurgist that the diagrams for any alloy system, of which iron is a component, need not be made any more complicated than they already are because of this transformation reported to occur in pure iron.

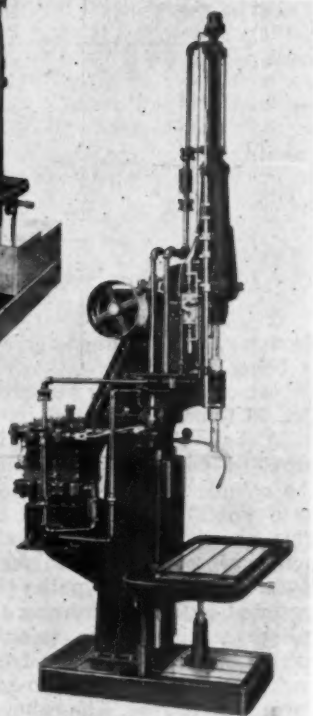
Hydraulically-Reciprocated Honing Machines

Two hydraulically-reciprocated honing machines, one of single-spindle and the other of double-spindle type, have been placed on the market by the Barnes Drill Co., Rockford, Ill. Both styles of the machine are all-gear, self-oiling and are equipped with ball bearings throughout.

They are designed for the production honing of



Multiple - Spindle
Honing Machine
(Above)



Single - Spindle
Honing Machine
(Below)

automobile engine cylinders, gas engine cylinders, pump cylinders, air brake cylinders, hydraulic cylinders, pneumatic cylinders, and bronze and cast iron bushings, bearings, etc. It is claimed that, in the honing of gas-line engine cylinder blocks that have been reamed to within 0.001 in. or 0.002 in. of size, these machines remove in about 1 to 2 min. all the high spots of the reamed bore, correcting also errors of cylinders out of round or slightly tapering, leaving a glass-smooth bearing.

It has been found that a spindle speed of 300 to 350 and 50 to 60 cycles of reciprocation (100 to 120 strokes) are meeting with favor. The cycles of reciprocation may be changed while the unit is running by means of the volume-regulator control on the Oilgear pump employed. There is a wide variety of opinions as to proper ratio of spindle speed to reciprocations, but any spindle speed desired can be furnished.

The multiple-cylinder honing machine, which is designated as the No. 214, is shown at the left in the accompanying illustration. There are two driving spindles, each having six integral splines driven by helical crown gears, which spindles run in two large cylindrical 5 in. diameter guides. On the bottom end of these reciprocating guides is attached a multiple head having from two to eight spindles, according to requirements. Each main spindle drives one-half of the

auxiliary spindles. A hydraulic cylinder, permitting any vertical travel up to 16 in., is mounted between the spindle housings. The piston thereof is attached to the auxiliary head on the center line of spindles and midway between them. An air cylinder counterbalance is used, operating directly on the main air line. When the honing stones are 4 in. in length, it is evident that cylinders 19 in. long may be honed, permitting an overrun of $\frac{1}{2}$ in. at each end of the cylinder.

All power shafts are mounted on radial ball bearings, and the gears are of steel, heat treated, and with helical teeth. Force-feed oiling system supplies oil to all ball bearings and sliding surfaces. The multiple disk clutch used is of the company's own design. A 20-hp. 1200-r.p.m. motor is recommended.

The single-spindle machine, designated as the No. 212, is shown at the right in the illustration. In this machine the hydraulic cylinder also permits spindle travel up to 16 in. It is super-imposed directly over the spindle and the piston is attached to the spindle by means of a ballbearing coupling. This arrangement is intended to permit any spindle stroke desired, and assists in setting the stroke so that hones will extend an equal distance through the bore at each end of the stroke. Stops on a vertical rotatable rod may be adjusted for any length of reciprocating stroke within the 16 in. of travel and a skip-stop permits lifting the spindle to the uppermost position. The machine clutch lever is arranged so that, when pulled forward, it engages driving multiple-disk clutch and opens the hydraulic valve, thus simultaneously starting rotation and reciprocation. Backward movement of lever stops machine. A latch on the lever permits hand control of the spindle vertical travel without engaging the clutch. Thus spindle may be brought to the work or lifted from it without rotation. The machine is driven by a 5-hp. 1200-r.p.m. motor and silent chain.

An air-operated table is available for use where the 16 in. of vertical spindle travel is insufficient to permit lifting the hone out of work. An air cylinder allows this table to be lowered about 9 in.

The height of single-spindle machine is 11 ft. 10 in. and of the multiple-spindle unit, 11 ft. 7 in. The floor space occupied by these machines is 53 x 57 in. and 61 x 76½ in., respectively. The net weight of the single-spindle unit, with motor and starter, is 3400 lb., the multiple spindle unit, with the same equipment, weighing 7840 lb.

International Furnace Co. to Market Industrial Furnaces

The International Furnace Co., recently incorporated under the laws of Pennsylvania, with offices in the Keenan Building, Pittsburgh, is an affiliation of Ofenbau-Gesellschaft m.b.H., Düsseldorf, Germany, and George J. Hagan, Pittsburgh. The German company has made numerous installations of industrial recuperative furnaces in large iron and steel plants in Europe, but has taken contracts also in this country, including some from a large Youngstown district steel company.

Mr. Hagan will continue his furnace business, besides promoting the recuperative type of furnaces now constructed abroad. The new company now has contracts for five furnaces, all of the recuperative type, for the Youngstown Sheet & Tube Co. to serve the new seamless tube mill of that company on which tubes will be rolled direct from the cast ingot instead of the pierced billet. The cast ingot tapers and in rotating through the furnace is difficult to keep in line. That difficulty is overcome in these furnaces by use of a manipulator which also separates them when necessary.

A line of chrome-vanadium steel "S" wrenches designed especially for millwrights, repairmen and assemblers has been placed upon the market by the Bonney Forge & Tool Works, Allentown, Pa. Although lighter in weight and of thinner section, the new wrenches are stronger than the carbon steel "S" wrenches. A sample kit containing the three most prominently used sizes is being marketed, as well as separate wrenches of various sizes.

Tool Grinding Machine

The W. Robertson Machine & Foundry Co., 56 Rano Street, Buffalo, has brought out the floor-type grinding machine here shown, which is known as the No. 12 Economy grinder.

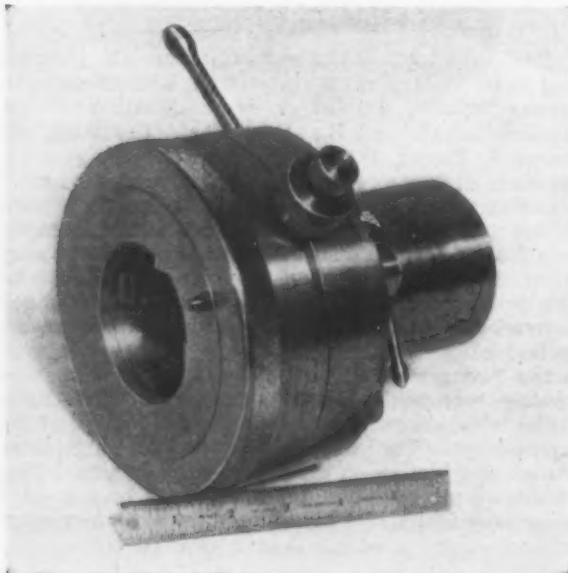
The machine is of rigid construction and is equipped with a high-carbon steel spindle which operates in Wear-ever self-oiling bearings. The bore in the head is machined in a special fixture to assure alinement. The bearings are $4\frac{1}{4}$ in. long and are assembled in the bored holes and held in position by set screws. A slot is milled on under side of the bearing, and in this slot is inserted a felt wick that carries the oil full length of the bearings. Nuts are designed for safety and cover the ends of the spindle thread. The pulley is keyed on the shaft and is balanced. The safety guard is bored to fit a bearing $4\frac{1}{4}$ in. diameter on which the guard can be adjusted to any opening at the work rest. The rests are adjustable to accommodate the different grinding operations. The machine will carry two wheels up to 12 x 2 in. x 1 in. hole.

An appliance for grinding such tools as chisels, plane irons, etc., as shown in the illustration of the machine is available. This device is said to permit such tools to be ground to a perfect bevel and slightly concave, requiring very little stoning. The height of the machine to center of the shaft is 37 in. and the distance between wheels is 15 $\frac{1}{4}$ in. The floor space occupied is 25 in. x 14 in. and the net weight is 200 lb. net.



New Non-Rotating Pull-Off Die-Head

The Jones & Lamson Machine Co., Springfield, Vt., has added to its High-Speed series a No. 7-H die-head of the regular non-rotating pull-off type. The new tool has a capacity of $\frac{3}{4}$ to 2 in. inclusive, and supersedes the tool previously designated as the No. 6. It is de-



Die Head Designed to Hold "High-Speed" Chasers With Ground and Lapped Thread Form. It has a capacity of $\frac{3}{4}$ to 2 in.

signed to hold and operate the new patented High-Speed chasers, with the ground and lapped thread form. The die-head itself, exclusive of shank, is 4 in. long and 6 $\frac{3}{4}$ in. in diameter.

The die-head is placed in the machine with the locking handle at the top, as shown in the illustration, and within easy reach of the operator. Directly underneath is a new type of adjusting screw, of the worm and gear type, which is quick to operate and extremely accurate. The head of this screw has graduations which read in thousandths of an inch. This adjusting screw is held in the die body by a fine-pitch screw, thus minimizing the travel while being adjusted. The double-thread worm actuates the eccentric bushing from undersize to oversize in slightly more than one revolution. A binder locks the adjusting screw securely in position. Operation is further facilitated by the roughing and finishing lever, which is on the operator's side.

The cover is locked in position by a bayonet lock. Pressure of the thumb on a button and a slight turn of the cover releases the lock so that the cover readily pulls from the body, and the changing of chasers becomes a simple operation. The cam is of the usual construction but with a deeper bearing on the chasers. It is equipped with an outside tripping button, which is used for shoulder work or for releasing the die when necessary.

The chasers are directly on center, and have the points of the threads at a 20-deg. top rake or cutting angle. They are ground with a 20-deg. clearance angle and a chamfer or throat angle varying from 15 to 35 deg. to meet the thread depth. A special chaser grinding jig furnished with the die is graduated to meet all grinding requirements. For diameters from $\frac{3}{4}$ to 1 $\frac{1}{2}$ in. inclusive the chasers are of the extension type, to permit the die to cut to a shoulder.

14-In. Sensitive Drilling Machine

A 14-in. sensitive drilling machine, named the Economy, and designed for drilling holes up to $\frac{1}{2}$ in., is being marketed by the W. Robertson Machine & Foundry Co., 56 Rano Street, Buffalo.

A ball thrust bearing is provided on the spindle and the spindle is counterbalanced by a weight in the column to give an even balance at all points of rotation of the feed lever. The spindle pulley is mounted on a stud bearing to relieve strain on the spindle caused by belt pull. The feed rack is cut in the sleeve to assure positive feed. The column is of rigid construction. Bearings are of composition metal of high wearing quality and designed for convenient replacement. The spindle head and table are adjustable and may be clamped to the column by simply turning a hand nut. The tongues on the head and table are long, insuring true-ness when clamped in the column slot. The belt can be shifted by foot or by hand. The machine is furnished in either belt or motor drive.



Specifications

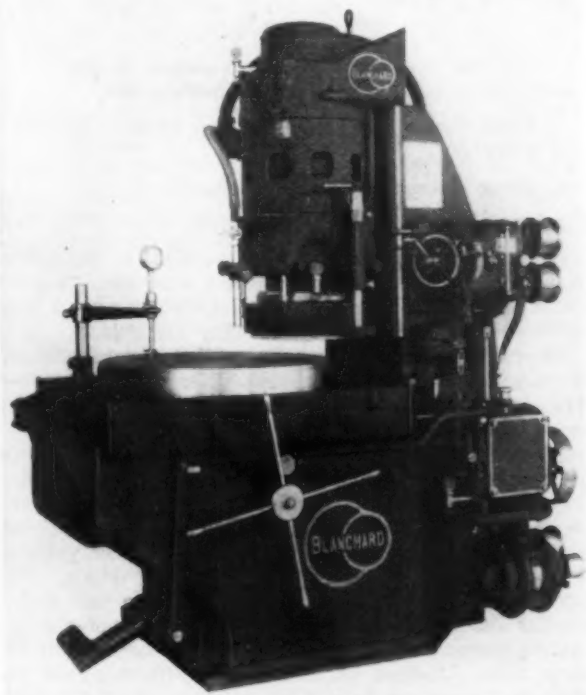
The height of the column is 63 $\frac{1}{2}$ in.; the vertical adjustment of the head is 8 $\frac{1}{4}$ in. and the travel of the spindle is 2 $\frac{1}{2}$ in. The distance from column to center of the spindle is 7 $\frac{1}{4}$ in. The floor space occupied is 18 x 35 in. and the weight is 325 lb. net.

The National Tube Co. on June 3 blew in its rebuilt and modernized No. 4 blast furnace at its McKeesport, Pa., plant. All four of the blast furnaces at this plant are in production at present, but as soon as the new unit gets into full production, it is planned to blow out No. 2 furnace for relining and repairs.

Equips Surface Grinder with New Wheel-Head

The Blanchard Machine Co., Cambridge, Mass., is offering its direct-motor-drive type of No. 16 vertical surface grinder equipped with a wheel-head of improved design.

The spindle is now carried on two large ball bearings, in the sliding wheel-head, with the upper bearing held up by springs which take up end play and place a considerable thrust load in an upward direction on



The Spindle Is Carried On Two Large Ball Bearings in the Sliding Wheel-head

the lower or main bearing at all times. The design is similar to that of the company's automatic surface grinder. The bearings are of the Gurney radial thrust type, the lower bearing having 11 balls 1 1/2 in. in diameter. The older type of spindle, now employed on the belt-driven machines only, had the spring take-up feature but used four bearings, two thrust and one radial ball bearing and a bronze bushing.

The change in spindle bearings, together with other improvements, is stressed as giving the new wheel-head the following advantages: No bearing adjustment required; no maintenance expense on bearings; and small oil consumption. The upper bearing is entirely covered, so that no moving parts are exposed at top of head, and the wheel guard being held directly in head, eliminates the spider casting formerly required. Another advantage emphasized is that the water passage in the head is easier to clean.

Shortage of Skilled Labor Makes Apprenticeship Training Imperative

A warning that a shortage of skilled workmen will continue to exist unless a more concerted effort is made by employers to train apprentices is sounded in a pamphlet on "Apprenticeship" issued by the department of manufacture of the Chamber of Commerce of the United States, Washington.

The bulletin is a nation-wide survey of methods of training now used in certain industries and vocational schools. Various aspects of the subject are covered under such headings as: "What Is An Apprentice?" "Apprenticeship vs. Shop Training," "Apprenticeship in Large Industries," "How Can Small Companies Deal Effectively with Apprenticeship?" "Vocational Education's Part in Apprenticeship," "Cooperating Agencies

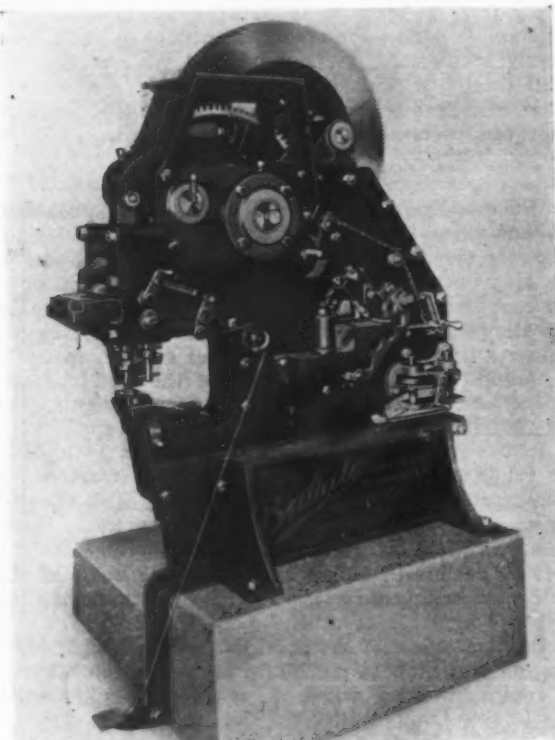
for Effective Apprenticeship," "The Laying Out of the Course," "The Supervision of the Apprentice," "The Wisconsin Plan of Apprenticeship," and "Selling Apprenticeship."

"Restricted immigration," the pamphlet says, "has reduced the former supply of trained man-power. Also, the tendency has been for boys to drift toward clerical and office jobs. This tendency is many times not justified by the opportunities to advance, but shows a neglect on the part of industry to sell the opportunities afforded the trained man in the shop. As in everything else since the earlier days apprenticeship has changed to meet changing conditions and demands. Notwithstanding the great growth of labor-saving and automatic machinery there is yet ample room for brains and skill in industry."

Universal Iron Worker with Built-in Coper

The Nos. 1/2 and 1 1/2 universal iron workers of the Buffalo Forge Co., Buffalo, are now available with a built-in coper arranged as shown in the illustration herewith. In addition to the coper, the machine has the regular punch, shear and bar cutter of the company's universal iron worker.

The coper is built on the punch end of the machine, being operated by the same plunger, and actuated by the same controls, either hand or foot. The foot control enables the operator to operate the machine with both hands on the work. The advantage of the built-in



The Coper Is Built-in On the Punch End, and Is Operated by the Same Plunger and Controls

coper is said to be in that it is not necessary to interchange the coping tools with the standard punching tools, as required with the ordinary coping attachment. A sheet steel cover guard, not shown in the illustration, is provided to fit over the coper to protect the operator.

The coper of the No. 1/2 machine will handle 5 in. channels, 6 in. beams and 3 x 3 x 5/16 in. angles. The No. 1 1/2 machine takes 6 in. channels, 7 in. beams and 3 x 3 x 3/8 in. angles. One cut only is required for full depth on all sections. The construction of this coper required redesigning the punch end of the universal iron workers, and therefore it cannot be applied to machines now in use. In the new machine, steel castings are used.

Business Analysis and Forecast

BY DR. LEWIS H. HANEY

DIRECTOR, NEW YORK UNIVERSITY BUREAU OF BUSINESS RESEARCH

Current Statistical Data, Considered Independently of Trade Opinion, Indicate That:

THE present high rate of steel production is not likely to continue.

Finished steel markets seem to be facing a gradual decline.

Steel ingot production is about 13 per cent above present estimated normal requirements.

Pig iron production is approximately 21 per cent above estimated normal requirements.

Somewhat lower prices for iron seem to be in prospect.

Scrap prices may rise moderately.

IT is apparent that some improvement in sentiment has developed in the iron and steel industry. The recent upturn in the stock market probably has helped this improvement along, but there has been also a little spurt in railroad buying and some stimulus has doubtless resulted from the marking up of bars, plates and shapes. Signs are not absent, moreover, that steel scrap is near bottom levels and the possibility of an upturn in this barometric commodity is encouraging.

While we think this improvement in sentiment is a little premature and consider that further weakness in pig iron, at least, is to be expected, and while the advances announced in steel bars cannot be called thoroughly established, it may be said with considerable confidence now that the steel industry confronts no debacle. There is good reason to believe that sustained improvement in scrap prices is not distant.

Steel Stability Marked

A REMARKABLY stable condition as to production and prices is shown in the first chart, which pictures the trend of the steel industry. At 3,945,000 tons, the May output of steel ingots was a reduction of 4.1 per cent from April, but it is found that, after making due allowance for seasonal variations and for the normal growth of the industry, the net decline was, after all, slight. Our adjusted index of the trend of steel production was 113.3 per cent of normal, against 114 per cent in April and 114.7 per cent in March.

In our judgment, the ingot output is a little above the requirements indicated by the current activity of steel-consuming industries, and certainly it is about 13 per cent over the normal trend of production. While, therefore, there has recently been considerable stability and the decline in May was slight, it is believed that further curtailment is practically certain during the next two or three months.

Unfilled orders of the Steel Corporation, at 3,649,000 tons, did not show so much of a decline as has occurred in recent months, which is a favorable indication.

Nevertheless, the decline brings the total at the end of May down to a point which is the lowest since August, 1925. The figure compares with 4,050,000 tons a year ago and with 3,628,000 tons on May 31, 1924.

As a result of the small unfilled orders and the large production, the composite price of finished steel has sagged slightly. The average for May was 2.416c., against 2.439c. in April and 2.46c. a year ago.

The relatively small decrease in unfilled orders probably indicates a gain in sales of steel during May, and there has been a little greater firmness in one or two items of finished steel recently. The significance of this firmness is still doubtful, however, and certainly it does not seem justified by the statistical position. The current trend in the building and automobile industries is downward, and altogether the problem of maintaining satisfactory prices is bound to be difficult for some time. Judged statistically, the margins of the steel producers can hardly be satisfactory on the average and the same basis of judgment gives no ground for expecting sustained improvement in the near future.

Too Much Pig Iron Made

PRODUCTION of pig iron in May continued largely in excess of normal requirements. It was in excess also of a normal relationship with the production of steel ingots. The output of 3,481,000 tons compares with 3,450,000 tons in the preceding month and with 2,931,000 tons a year ago. The increase in May, however, was almost exactly the same as the usual seasonal movement plus an allowance for normal growth and, therefore, our adjusted index remained unchanged at over 121 per cent of the normal trend. This compares with 113.3 per cent for steel ingots.

On the average daily basis, it is found that the May pig iron production was 74 per cent of the steel ingot tonnage, which compares with 72.5 per cent in April and 71.1 per cent a year ago. The percentage was as low as 64.3 in November, 1925. Probably the normal relationship under present conditions in the industry is

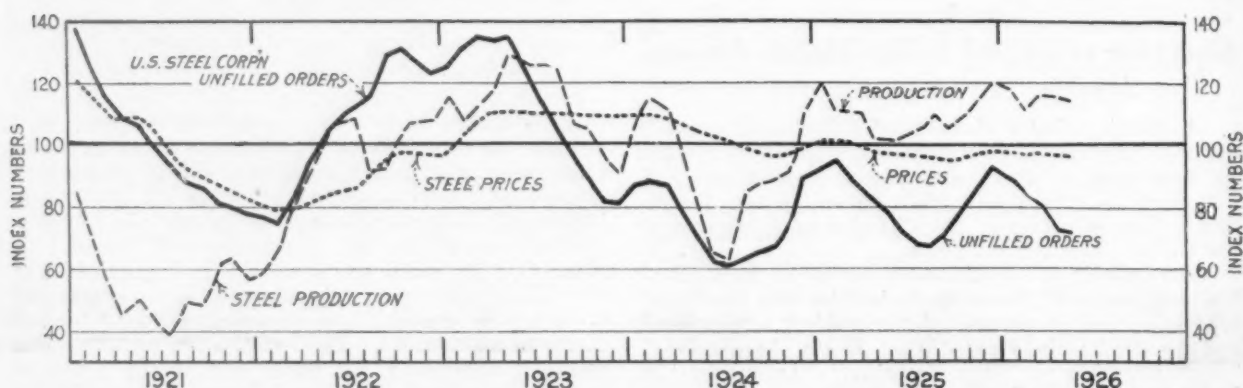


Fig. 1—In Conformity With the Usual Seasonal Decrease in Steel Ingot Production, Corrected for Normal Growth of the Industry, May Output Showed a Moderate Downward Trend. Continued high consumption of steel, while probably below production, was enough to prevent a sharp drop

In This Issue

Exporting the 10 per cent excess spells prosperity, says Southern steel man.—Productive capacity is one-tenth greater than normal domestic consumption. Selling the margin abroad makes for prosperous conditions here.—Page 1729.

Finds it pays to grind steel castings before annealing instead of after.—Gives Ross-Meehan higher production, and fewer defective castings; and also eliminates hard spots which are sometimes created by heat generated in grinding annealed castings.—Page 1706.

Are scrap prices now near bottom?—"There is good reason to believe that sustained improvement in scrap prices is not distant," says Dr. Haney.—Page 1724.
". . . scrap is getting low enough, and it is only a question of a little time before material advances may be expected."—Page 1727.

Foreign trade hazard is 95 per cent mental.—Risk is usually less than on domestic shipments. Credit losses average less than one-half per cent. Banks now offer excellent facilities for financing export shipments.—Page 1730.

What causes heterogeneity of steel ingots?—In the large ingots it is due to differences in crystallization and, of course, the segregation of metallic and non-metallic products, says British metallurgist.—Page 1712.

No labor troubles for 26 years.—Mrs. Fisher Andrew, head of Fisher & Norris, has never had a strike in the anvil plant she owns and manages.—Page 1715.

Is pig iron output too high?—Yes, says Dr. Haney, predicting a sharp decline in output in next two months, or a further decline in prices.—Page 1727.

Estimates 3 billion dollars yearly is spent for transportation within industrial plants.—Substitution of mechanical handling for hand labor offers opportunities for tremendous savings. Speed in handling materials permits carrying a smaller inventory.—Page 1709.

No need to worry over exhaustion of raw materials for refractories.—Even in Pennsylvania, where mining has been heaviest, there is enough fire clay in sight to last 25 to 50 years, exclusive of undeveloped resources.—Page 1709.

Japan offers active market for wide variety of American products, says Government official.—Rapid industrial progress of Nippon, though resulting in home supply of some classes of goods formerly imported, has stimulated the demand for certain classes of iron and steel products, including highly specialized machinery, large electric power generating units, etc.—Page 1733.

Steel roof laid when Lincoln was in office still in excellent condition.—After 60 years of service, roof on Elmira, N. Y., house recently torn down is cut up into shingles to be used over again.—Page 1707.

Donner is experimenting with a flat, suspended O. H. furnace roof.—Believes this will reduce the scouring of roof along the front and back walls, and space opened up will lessen gas velocity.—Page 1709.

Electric steel foundry dries cores and molds and anneals castings in electric ovens.—Southern steel foundry is electrically equipped throughout. Ovens are automatically controlled, clock switch shutting off current when pre-set time is reached.—Page 1704.

Credit data on foreign concerns easily obtained.—Do not let fear of foreign credit risk deter you from seeking export business. Government bureaus and other dependable sources can usually furnish accurate information.—Page 1729.

Are steam engines obsolete for rolling mill drives?—No, says Wheeling steel engineer, citing performance record of new uniflow engine, supplied by modern steam plant. Declares disparaging comparisons have been based on older types of engines.—Page 1710.

Slaggy matter in steel ingots, both basic open-hearth and electric, is found to be at the maximum in central lower part of ingot.—In the same region the silicates are not only greater in amount, but the separated residues include a considerable proportion of globules larger than those normally found in the other part of the ingot.—Page 1712.

Galvanizers did record business in 1925.—Used 286,000 net tons of spelter last year, about half of which was for sheets. More attention should be given the nature of the spelter to be used for galvanizing. Deterioration of some galvanized coatings may be due to the deposition of metallic impurities.—Page 1736.

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For the Convenience of the Reader

ONE likes to find promptly in his paper what he chiefly takes it for. Accordingly it is always desirable to have each kind of article in about the same position in each issue. As far as possible the same schedule of arrangement is followed each week in making up THE IRON AGE.

What are called feature and general articles come first. Next are to be found descriptions of developments in machine tools and industrial equipment. The orange bordered page, devoted to a marshaling of the contents, serves to locate the reading matter in general apart from the advertising, which has its separate indexes. Facing these two pages is the "Business Analysis and Forecast Section." Washington news and other news items of the week for the most part lodge in the succeeding pages. Then are given the editorial pages, followed in turn by the iron and steel and non-ferrous markets, the personal and obituary notes and finally the machinery markets.

For News Summary See Reverse Side

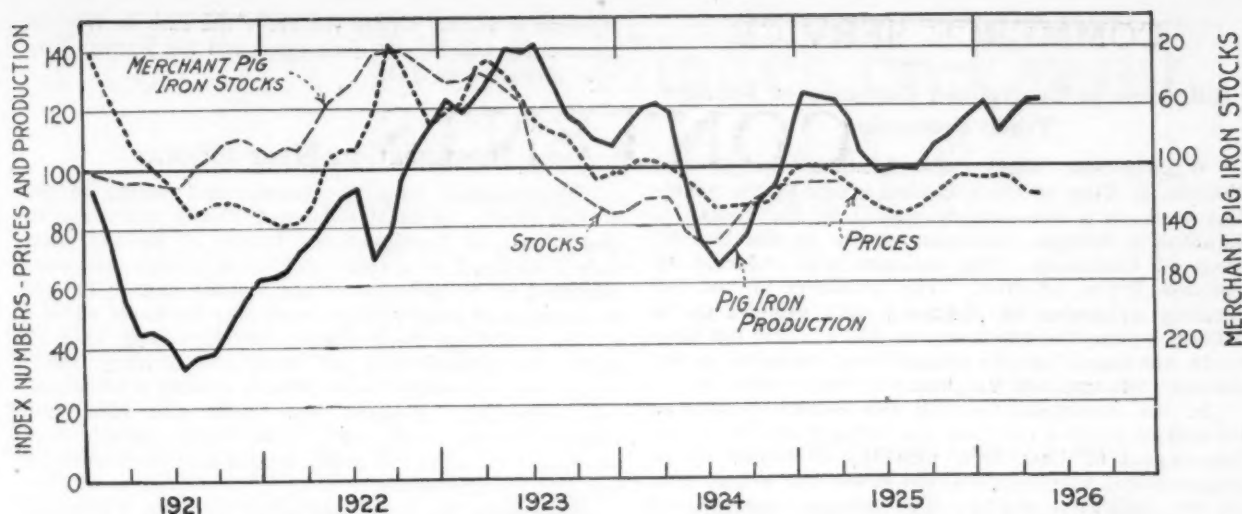


Fig. 2—Though the High Rate of Steel Production and Consumption Somewhat Justifies the High Output of Pig Iron, Over-Production Is Evident and Both Curtailment and Lower Prices May Be Expected

about 72 per cent. Thus there is reason to believe that too much pig iron is being produced and, as usual under such circumstances, lower prices and curtailment are probable—for example, consider 1923, the spring of 1924, and early 1925. A reasonable forecast appears to indicate either a sharp decline in production of pig iron during the next two months, or a further decline in prices. If the decline in production is slight, prices will rule weak, with minor downward readjustments.

In fact, the price of pig iron has been on the downgrade, as was forecast in this department several months ago. THE IRON AGE composite figure averaged \$20.27 in May, against \$20.52 in the preceding month, and in the week of June 8 the figure fell to \$19.79. The low point reached last year was \$18.96. At that time, however, furnace coke sold at \$2.75, which is lower than the current market, and the production of pig iron was more largely in excess of the normal and more out of line with steel production than at present. There is some reason, therefore, for believing that the decline this year will not go so low as \$18.96. But certainly the statistical position indicates that no advance is yet in sight and makes it probable that small further declines may be expected.

General Prices Declining

AS shown in Fig. 3, the general trend of commodity prices continued downward in May, though at a less rapid rate than in the months immediately preceding. The Bradstreet index declined 0.8 per cent

between May 1 and June 1 and reached the lowest point since August, 1924.

In August, 1924, finished steel, according to THE IRON AGE index, averaged about \$2 a ton higher than it does now. This fact suggests the reason why steel has held up better than the general level of commodity prices in the last few months. Steel prices have also performed the unusual feat of not falling, shortly after a decline in the general average, a feat which is the more remarkable in that both pig iron and steel scrap have declined in price. In fact, pig iron at \$19.79 is the lowest since the week of Oct. 13 last year.

Scrap Due for an Upturn

THE scrap market is of particular interest at present. It is evident that scrap is getting low enough and that it is only a question of a little time before material advances may be expected. With the abundant supply of money and low interest rates, speculation in that commodity is bound to be encouraged and, as a rule, scrap bought at \$15.50 will show a profit on the long pull. Certainly the scrap market has been down to or a little under the normal relation with the pig iron market. Considering the price of steel and the relative prices of pig iron and scrap, no further decline appears to be justified. It is true that pig iron may weaken further, which would tend to hold scrap down, but steel prices are already so low, and show evidence of holding so well, that they do not seem likely to cause further weakness in the scrap market.

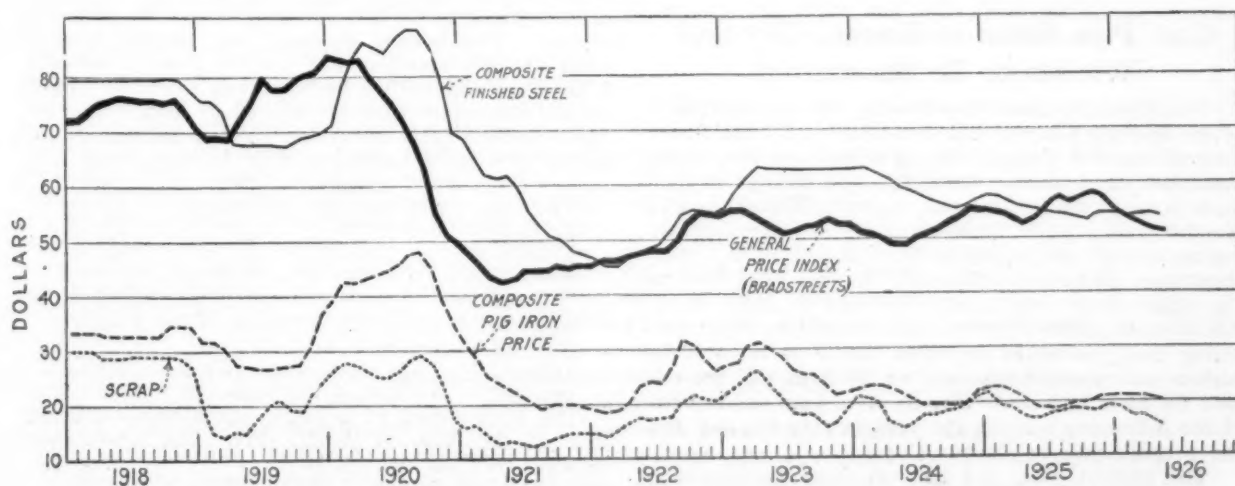


Fig. 3—The General Trend of Commodity Prices Has Been Downward Since December, and It Might Be Inferred That Steel Prices Are Accordingly Due for a Sharp Drop, but This Is Not Likely, Since Steel Prices Are Much Nearer Bed-rock Than in Previous Periods When a Break Did Occur. Scrap prices may be expected to stiffen

COMMERCE SERVICE

Bill Aims at Centralized Guidance of Foreign Trade Promotion

WASHINGTON, June 15.—Objection by Senator William E. King, of Utah, blocked a vote by the Senate last week on a bill, already passed by the House, to establish a foreign commerce service in the Department of Commerce. The measure was reported by Senator Willis, of Ohio. The provision of the bill creating a number of positions, with salaries up to \$10,000 a year, the appointees to which would not have to be confirmed by the Senate, was objected to by Senator Swanson, of Virginia.

In the report on the bill the Senate Commerce Committee pointed out that the foreign service of the Department of Commerce, although developed under congressional authorization, has never had a fixed and definite legislative status. The principal purpose of the bill is to provide such a status. It also provides a clear statement of the duties of the service and a more definite classification of personnel. It is believed by the committee that this will materially improve the efficiency of the service.

No Real Change Contemplated

The report states that the bill sets up no new machinery and involves no real departure from what is now being done. The measure is substantially the same as the one reported by the committee in the preceding session of Congress. The report points out that the need for centralized guidance of foreign trade promotion has assumed extraordinary importance since the war and will be further magnified with the return of Europe to normal competition with the United States in world markets.

The foreign trade service consists of 16 commercial attachés, 40 trade commissioners, and 45 assistant trade commissioners. The functions of commercial attachés and trade commissioners are identical, although the former, being attached to embassies or legations, outrank the latter, who are attached to less important offices. Nowhere in the Government service, according to the report, are to be found men more competent and alert.

The bill defines the duties of these foreign trade representatives and provides for their classification into various grades. It fixes a specific salary range about as at present and a per diem allowance the same as that provided in the Rogers act, which deals with the diplomatic service. Unlike the Rogers act, however, the bill carries no retirement features. The maximum salary that may be paid is increased from \$9,500 to \$10,000, to meet a need as to one or two important offices.

Cast Pipe Rates to Kansas City and Wichita to Be Readjusted

WASHINGTON, June 15.—Passing upon a complaint of the Wichita Chamber of Commerce et al., the Interstate Commerce Commission, in a decision last week, held that rates on cast iron pipe and fittings in carloads from points in Alabama, Georgia, Tennessee, and North Carolina to Wichita, Kan., are not unreasonable but are unduly prejudicial to Wichita and unduly preferential to Oklahoma points and Kansas City, Mo., to the extent that they exceed the rate to Enid, Okla. Effective Aug. 16, the commission entered an order providing that the undue prejudice should be removed in such a manner that the rates to Wichita will not exceed the rates to Kansas City by more than the amount of the difference between the present rate to Enid and the present rate to Kansas City.

The present rates per net ton from Birmingham, Ala., and Chattanooga, Tenn., to the three destination points are as follows: to Wichita, \$14.85; to Kansas City, \$10.15; to Enid, \$12. The difference between the present rates to Enid and Kansas City is \$1.85, while the difference between the rates to Kansas City and

Wichita is \$4.70. Under the order the rate to Wichita apparently will be left unchanged and the Kansas City rate increased to \$13.

Immigration Near Quotas

WASHINGTON, June 15.—Immigrants coming to the United States in April numbered 33,400, according to the Bureau of Immigration. In the 10 months from July 1 to April 30 a total of 130,138 immigrants were admitted, or 80 per cent of the annual quota. This is an increase of nearly 10 per cent over the same months of the preceding fiscal year. Of the immigrants in April the greatest number from any country, 6285, came from Germany, while Mexico ranked a close second, with 6237; England was third, with 4524, and Ireland fourth, with 4431. The April immigration movement included 175 listed as iron and steel workers and 223 as machinists.

Emigration in April amounted to 4989. The apparent net inflow thus was 28,411.

Recommends Uniform Rate of \$1.89 on Pig Iron from Chicago to Benton Harbor

WASHINGTON, June 15.—Passing upon a complaint of the Manufacturers' Traffic Bureau and others of Benton Harbor and St. Joseph, Mich., Examiner W. R. Brennan, in a tentative report to the Interstate Commerce Commission, held that the rate of \$1.89 per gross ton on pig iron in carloads from points in the Chicago district to Benton Harbor, St. Joseph and Bridgman, Mich., is not unreasonable. It was also held that the rate of \$2.65 published by the Michigan Central should be eliminated from that carrier's tariff. In the course of the hearing it was testified by a witness for the complainants that Benton Harbor, St. Joseph, and Bridgman consumed 50,000 tons of pig iron annually, that 30,000 tons came from the Chicago district, and that 60 to 75 per cent of the Chicago tonnage originates on the Elgin, Joliet & Eastern Railway. According to exhibits of the railroads Benton Harbor and St. Joseph consume 18,000 tons annually.

Moderate Decrease in Unfilled Steel Orders in May

Only a moderate decrease compared with recent ones was recorded in the amount of unfilled orders on the books of the United States Steel Corporation as of May 31. The total unfilled business amounted on that day to 3,649,250 tons, a decrease of 218,726 tons from the total of 3,867,976 tons as of April 30. This is the fifth decrease since August, last year, and these have occurred in the five consecutive months since December. The largest decrease was 511,959 tons in April and the smallest was 150,625 tons in January. A year ago the unfilled business was 4,049,800 tons or 400,550 tons more than at the end of May, this year. The following table gives the unfilled tonnage as reported by months beginning with January, 1924.

		1926	1925	1924
Jan.	31.....	4,882,739	5,037,323	4,798,429
Feb.	28.....	4,616,822	5,284,771	4,912,901
March	31.....	4,379,935	4,863,564	4,782,807
April	30.....	3,867,976	4,446,568	4,208,447
May	31.....	3,649,250	4,049,800	3,628,089
June	30.....	.....	3,710,458	3,262,505
July	31.....	.....	3,539,467	3,187,072
Aug.	31.....	.....	3,512,803	3,289,577
Sept.	30.....	.....	3,717,297	3,473,780
Oct.	31.....	.....	4,109,183	3,625,270
Nov.	30.....	.....	4,581,780	4,031,969
Dec.	31.....	.....	5,033,364	4,816,676

The high record in unfilled orders was 12,183,093 tons, at the close of April, 1917. The lowest was 2,674,757 tons, on Dec. 31, 1910.

Hearings in the Bethlehem Steel merger case in New York, which were to have begun on June 8, have been postponed until June 21.

Foreign Trade Hinges on Credit

Methods of Determining the Responsibility and Arranging Terms Outlined by Atlantic Steel Official

THAT the productive capacity of the United States is in excess of its normal consumption and that upon our selling the last 10 per cent of our goods abroad rests the verdict as to whether we, as a nation, are to enjoy prosperity or face depression, was the statement made recently by Paul Miller, of the Atlantic Steel Co., Atlanta, before the Atlanta Foreign Trade Club. And his remarks upon the subject of foreign trade contain many points which the manufacturer could think upon with profit.

"One bugaboo that to many minds has stood as an ever-present menace to profitable exporting was that of credit granting and its accompanying factors. Invariably came such questions as 'How can the financial responsibility of a foreign customer be determined?', 'What kind of terms do you have to grant?' and 'How can such transactions be financed?' Fear of these reefs has kept many business men from entering the harbor of increased profits.

Determining Responsibility

"Granting of foreign credit offers some difficulties, but so does every-day life. Study, experience and vision are necessary, but no more so than in proper handling of domestic credits. The fundamentals—the real, deep-down bases underlying credit worthiness in foreign countries—are precisely those which obtain in the United States. The three 'C's—capital, capacity and character—apply with equal force in Memphis and Montevideo; in Jacksonville and Johannesburg; in Atlanta and Antwerp.

"Information concerning these should be sought and obtained from every available source. There is no longer any excuse for pleading a lack of knowledge, for within the past 15 years a vast fund of information bearing upon foreign credit granting has become available. Those in earnest should have no difficulty in obtaining the facts.

"R. G. Dun & Co., with offices in nearly every part of the globe, furnish detailed reports on foreign companies just as in the United States. There are also the Philadelphia Commercial Museum, the American Export Manufacturers' Association, and the American Manufacturers' Foreign Credit Insurance Exchange. The last-named company not only maintains elaborate credit files, but insures foreign accounts for its members.

"Highly confidential reports and expressions of opinion may be secured through close banking connections. The banks of almost every port city keep foreign credit files. Worthy of especial mention is the National City Bank of New York, with branches or controlled correspondents in almost every country.

"A third valuable source of information is the Foreign Credit Interchange Bureau maintained by the National Association of Credit Men. From such reports one can secure the consolidated experience of every manufacturer in the country who has done business with the concern in question. This report shows

how long sold, the terms granted, the highest credit given, the amount owing, the amount past due, the general manner and method of payment and the reporting concern's rating of the customer.

General Information Needed, Also

"However, proper foreign credit granting consists of more than passing on an order after reading over the financial reports so secured. Intelligent foreign credit work has the widest ramifications. The credit manager must have a detailed picture of the country to which his merchandise is to be shipped. He must know the customs of the people, the commercial laws, the chief source of revenue of the country and the procedure that he must follow to protect the interests of his house.

"Political upheavals and disturbances such as the recent strike in England or the revolt in Poland—seriously affect economic conditions. They interfere with or totally disrupt ordinary lines of traffic and communication; interfere with the customs at ports of entry, delay clearance and dispatch of goods, leading to damage through lack of care or loss by theft, confiscation or destruction, and render ordinary financial or banking transactions unsafe or impossible.

Economic Factor Important

"Also, the economic trend as indicated by known or determinable factors is important. Some countries are mainly dependent upon one or two commodities, both for internal prosperity, and to provide the necessary exchange to pay for goods purchased abroad. We may cite sugar in Cuba, coffee in Brazil, wheat and cattle in Argentina, bananas in Honduras, henequin in Yucatan, as typical.

"In furnishing information of this nature, the Bureau of Foreign and Domestic Commerce is rendering invaluable assistance. Innumerable reports, dealing with almost every foreign market, are constantly being published and are furnished free of charge. Through the consular and commercial attaché services these reports are kept up to date, credit information is supplied, the general economic trend is outlined and new trade opportunities are listed. With such a wealth of information available, the question of the credit risk is made fairly easy, and it is then up to the credit manager to fix the terms of the contract.

Terms of Credit Granted

"One chief cause of America's lack of progress in the foreign field has been insistence upon cash in advance or letters of credit. This is due in large measure to a failure to understand the position of the foreign merchant.

"Shipments to South America', said E. B. Filsinger, export manager of Lawrence & Co., in a recent address before the Foreign Trade Council, 'may be three to four weeks in transit, those to the Philippines, China, Java, South or East Africa, anywhere

EXCESS production must be sold abroad to promote prosperity at home; fundamentals of foreign credits are the same as obtain in the United States; credit information in detail is available to all who seek it earnestly; conditions other than individual responsibility may affect foreign business; terms of credit easily may be arranged; when properly safeguarded, foreign trade, so far as credit is concerned, is 99 2/3 per cent safe.

These are the chief points brought out in Mr. Miller's talk.

from 50 to 75 days en route. Allowance must be made for clearance after arrival at port of destination and delays in custom house while awaiting transportation to the interior. Not every country is equipped with railroads like the United States, and the means of moving interior shipments are sometimes very primitive. Recourse is still had to the donkey, the camel, the llama and even in some places to human beings. Account must be taken of unfavorable weather conditions, such as tropical storms, ice-bound ports, and low water in an important artery of commerce which make it impossible to carry large quantities of merchandise into the interior.

"As a specific example of the latter sort of difficulty may be cited the present situation in Colombia. There the Magdalena River has been so low for several months that neither coffee from the interior nor imported goods from abroad can be moved.

"Obviously, then, it would be unfair to demand cash in advance, or letter of credit, from a reputable customer and cause him to be out the use of his money for such a long period. Banking capital in many countries of great natural resources is limited and interest rates are high, frequently from 7 to 15 per cent or even 20 per cent. Herein lies another reason why firms of high standing still ask for credit accommodations abroad. It is certainly better business for them to pay interest at 6 per cent to foreign suppliers, than to pay from 8 to 15 per cent to local bankers."

Three Forms of Terms

"Arrangement of terms may be made to fit any condition that might arise.

"First, there is the open account. Under this, merchandise is shipped, as in the United States, without documents, remittance being made at the end of an agreed period. This method is most common in the West Indies, Mexico, Central and South America and certain European countries.

"Another method used is the current account, through which also shipments are made without documents. Foreign buyers may remit before the expiration of, say, four or six months. If payment is anticipated, a discount is allowed; if payment is made after the specified date, interest is charged. Frequently, during certain seasons, the foreign buyer may have a credit balance upon which interest is paid. This form of account is in favor with manufacturers in Great Britain and some Continental countries, and is widely operative throughout South America.

"Finally, there are various forms of documentary shipments, handled by different types of drafts. These drafts may be drawn at sight, 30, 60, 90 or 120 days sight, or 30, 60, 90 or 120 days date, with papers direct

to the bank for delivery to the customer on acceptance, or the papers may be sent direct to the customer and the draft to the bank for collection. A draft at 90 days date means that it must be accepted payable 90 days from the date that it is made. A draft drawn at 60 days sight must be accepted payable 60 days from date of presentation.

Drafts on "Date" Basis Preferred

"There is a good deal in favor of drawing drafts at 90 or 120 days date, rather than at 60 or 90 days sight, as in some countries banks are lax about presenting drafts and hence there is uncertainty as to the date of maturity, until actually accepted. This also gives in advance a definite maturity date to the obligation.

"In transacting business, not only in foreign countries but in domestic markets as well, the manufacturer sometimes finds it necessary to insist on a cash payment or its equivalent. In shipments to certain countries, this can be accomplished by 'order notify' shipments. But in others, as, for example, Santo Domingo, Venezuela and Colombia, such shipments are not allowed by law. In such cases cash in advance or letters of credit are advisable.

Financing the Transaction

"The third bugaboo has been the matter of financing. However, to quote from Mr. Filsinger again, 'the banking facilities open to American manufacturers have grown amazingly during the past decade, and the exporter of standing will find no difficulty in discounting his drafts on foreign merchants. There are a number of banks organized exclusively for foreign trade. In addition, some of our leading banks are magnificently equipped for financing export transactions. It is safe to say that no legitimate operation possible to American exports, even involving credits for a longer period than ordinarily granted, need go un-financed. And innumerable transactions take place daily under which the American shipper receives the full value of his draft immediately upon presentation of the documents to his bank for discount.'

"It has been proved over and over again that the hazard in foreign trade is 95 per cent mental. Seasoned exporters realize that, when all is said and done, the amount of risk involved in a foreign shipment is, in a majority of cases, less than on shipments made within their own borders.

"In fact, experience has proved that credit losses in export trade average from $\frac{1}{8}$ to $\frac{1}{2}$ per cent. How much business in the United States can be said to be 99% per cent safe?"

Cartels and Price Agreements Increasing in European Countries

WASHINGTON, June 15.—The recent countervailing order of the Treasury Department regarding imports of iron and steel products from Germany directs attention to the growing tendency toward international regulation of production and prices in European countries. This trend indicates a significant change in conditions of international competition, according to Richard Eldridge, European division, Department of Commerce. The effects of many of the industrial conditions which existed during the period of depression following the war have been recognized and their abolition has become a part of the programs of the principal national and international associations of commerce and industry in Europe.

It is pointed out by Mr. Eldridge that before the war more than 100 such international commercial and industrial agreements existed between European countries. During the period when attempts were being made to reorganize the war-expanded industry of those countries, international coordination was practically negligible. Moreover, the temporary advantages to be derived during the inflation period did not tend to encourage attempts at commercial understanding between the competing nations, while the desire to protect new

industries by means of tariff barriers, state subsidies, dumping and anti-dumping measures, and the like, further discouraged such a movement toward agreement.

That considerable progress has been made along the lines of international cartel formation, Mr. Eldridge explained, is evidenced by the international agreement in numerous lines, including rails, potash, incandescent lamps, artificial silk, etc., which have been effected recently in Europe.

Of even greater significance in world commerce than these agreements, however, in the estimation of Mr. Eldridge, are the present efforts to create similar understanding in iron and steel, coal, chemicals, nitrates, paper, and cotton spinning industries, which are and have been the subject of negotiation.

Ferromanganese Not Imported from Russia

WASHINGTON, June 11.—The Bureau of Foreign and Domestic Commerce announces a correction of its figures showing imports in April of manganese ore from Russia. The total movement from that country for April should have read 28,461 tons, instead of 23,842 tons, the difference, 4,619 tons, having been erroneously reported as ferromanganese imported from Russia.

FABRICATED STEEL

Railroad Prominent in Awards and Purchases of Fabricated Material—Small Bridges a Feature

Bookings reported in the past week called for about 25,000 tons. With only a few exceptions most of the projects were for about 1000 tons or less. About 2600 tons for bridges was placed by the Pennsylvania Railroad and 2000 tons by the Southern Railway. New business reported amounted to 17,000 tons, including 3000 tons for a car ferry for the Ann Arbor Railroad.

CONCORD, N. H., 180 tons, for school, to the A. L. Smith Iron Works, Chelsea, Mass.

WILLIMANSETT, MASS., 165 tons, manufacturing plant, B. F. Perkins & Son., to G. Haarman & Co., Inc., Holyoke, Mass.

SOMERVILLE, MASS., 560 tons, garage for Boston Elevated Railway, to Boston Bridge Works.

NEW YORK, 1300 tons reported by the Structural Steel Board of Trade in the following awards to its members: Loft building, 335-343 West Thirty-fifth Street, to A. E. Norton, Inc.; loft buildings, Broadway and Reade Street and Fifth Avenue and Fifty-seventh Street, to Hay Foundry & Iron Works.

NEW YORK CENTRAL RAILROAD, 900 tons, track bridges at Fordham, to McClintic-Marshall Co.

BROOKLYN, 170 tons, office building, 54-56 Court Street, to Joseph Gaydica Iron Works.

BROOKLYN, 200 tons, factory at 4617 Flushing Avenue, to American Bridge Co.

PERTH AMBOY, N. J., 300 tons, theater, to Eldletz & Ross.

PENNSYLVANIA RAILROAD, 2600 tons, bridges, 1100 tons to McClintic-Marshall Co. and 1500 tons to Bethlehem Steel Bridge Corporation.

PENNSYLVANIA RAILROAD, 240 tons, 20-signal towers, to Oregonia Bridge Co., Lebanon, Ohio.

ERIE RAILROAD, 200 tons, bridge, to Bethlehem Steel Bridge Corporation.

SOUTHERN RAILWAY, 2200 tons, bridges, 600 tons to American Bridge Co., and 1600 tons to Virginia Bridge & Iron Co.

WASHINGTON, 1000 tons, McKinley Technical High School, to Barber & Ross.

MEMPHIS, TENN., 2000 tons, steel barges for United States Engineers, to Dravo Construction Co.

CLEVELAND, 350 tons, addition to Upson Nut plant for Bourne-Fuller Co., to Jones & Laughlin Steel Corporation.

RACINE, WIS., 100 tons, addition, American Skein & Foundry plant, to Worden-Allen Co.

LACROSSE, WIS., 175 tons, bridge over LaCrosse River, to Wausau Iron Works.

MINNEAPOLIS, 400 tons, church, to Crown Iron Works Co.

CHICAGO, 6900 tons, Builders' Building, to American Bridge Co.

SANISH, N. DAK., 1000 tons, highway bridge over Missouri River, to American Bridge Co.

MISSOURI PACIFIC, 700 tons, bridges, to American Bridge Co.

UNION PACIFIC, 200 tons, bridges, to unnamed fabricator.

BEVERLY HILLS, CAL., 2300 tons, McCarthy Apartments, to Llewellyn Iron Works.

SAN FRANCISCO, 175 tons, apartment, Chestnut and Leavenworth Streets, to Central Iron Works.

OAKLAND, CAL., 200 tons, ferry slip for the Santa Fe Railroad, to Moore Dry Dock Co.

OAKLAND, 100 tons, Walnut Creek pumping plant for the East Bay Municipal Utility District, to Western Pipe & Steel Co.

SEATTLE, WASH., 300 tons, municipal pipe line, to Puget Sound Machinery Depot, Seattle.

Structural Projects Pending

Inquiries for fabricated steel work include the following:

PROVIDENCE, R. I., 550 tons, two buildings for Brown University; to be refigured.

PROVIDENCE, 1200 tons, highway bridge.

UTICA, N. Y., 1000 tons, Utica Gas & Electric Co., office building.

MIDDLETOWN, N. Y., 300 tons, Memorial Hospital.

BALTIMORE, 9000 tons, department store, Hochschild-Kohn, postponed until fall.

CHATTANOOGA, TENN., 700 tons, bridge for Southern Railway.

WEST VIRGINIA, 500 tons, highway bridge in Marion County; Mount Vernon Bridge Co., low bidder.

WEST VIRGINIA, 400 tons, highway bridge in Logan County; Mount Vernon Bridge Co., low bidder.

LOUISVILLE & NASHVILLE RAILROAD, 1500 tons, bridges; bids close June 24.

LOUISVILLE, 200 tons, Crescent Hill Baptist Church; bids in.

CLEVELAND, 250 tons, police station; National Concrete Fireproofing Co., low bidder.

CLEVELAND, 1000 instead of 500 tons for Auditorium Hotel.

DAYTON, OHIO, 800 tons, experimental station at Wilbur Wright Flying Field; bids close June 22.

FRANKLIN, OHIO, 100 tons, building for Aetna Paper Co.; bids in.

ANN ARBOR RAILROAD, 3000 tons, car ferry.

JOLIET, ILL., 600 tons, Clinton Square Hotel.

SUPERIOR-DULUTH, interstate bridge, Scherzer rolling lift type, 350 tons; bids closed June 15, Rollin C. Buck, Inc., Superior, Wis., consulting engineer.

RACINE, WIS., Main Street bridge over Root River, Strauss trunnion bascule, 250 tons; bids close June 30, James W. Beauregard, city engineer.

NORTHERN PACIFIC RAILROAD, 1000 tons, bridges.

NEWPORT, IDAHO, 500 tons, State highway bridge.

SAN FRANCISCO, 2400 tons, 20-story hotel, Powell and Sutter Streets; bids about July 15.

SAN FRANCISCO, 250 tons, loft building addition, Market and McAllister Streets.

OAKLAND, CAL., 500 tons, Physicians' and Dentists' Building, Franklin between Fifteenth and Seventeenth Streets.

STOCKTON, CAL., 100 tons, draw bridge over King Island Cut, near Stockton; bids July 6.

SEATTLE, WASH., 326 tons, Pacific Telephone & Telegraph Co., building; bids in.

RAILROAD EQUIPMENT

Numerous Orders and Inquiries for Underframes but Very Little Business in Complete Cars

Underframes constitute the principal railroad business for the week. These include inquiries for 3500 and orders for 235. There also was an order for 500 stock car bodies. The only business in complete cars was for 18 side-extension dump cars.

The Burlington is in the market for 300 freight car underframes.

The Great Northern has revised its recent inquiry for freight car underframes and is now asking for prices on 3200; 2000 for box cars, 200 for flat cars and 1000 for automobile cars.

The Carnegie Steel Co. has ordered 18 side-extension dump cars from the Clark Car Co.

The Chicago & North Western has ordered 500 stock car bodies from the Illinois Car & Mfg. Co. and 25 caboose underframes from the Bettendorf Co.

The Great Northern has ordered 10 steel underframes from the Siems-Stembel Co.

The Chicago, Rock Island & Pacific has placed 200 steel underframes with an unnamed builder.

The Seaboard Air Line is inquiring for 30 to 50 all-steel express cars.

Seek Agreement on Puddling Wage Rate

YOUNGSTOWN, June 15.—Conferees seeking to renew the sliding scale wage agreement in the bar iron division of the steel industry were scheduled to resume sessions this week. Adjournment at Atlantic City followed a failure to agree. Puddlers demand a flat rate of \$15 for puddling iron and the abandonment of the sliding scale arrangement, which has been in effect for many years.

The current agreement provides for its extension automatically 30 days from June 30, if conferees are unable to agree by that time.

Negotiating to Acquire Bean Spring Co.

Negotiations are under way for the sale of controlling interest in the Bean Spring Co., Massillon, to D. C. Swander and associates of Cleveland, who have made an offer for 75 per cent of the stock which is expected to be accepted.

The tube mills at the Zanéville, Ohio, works of the Youngstown Sheet & Tube Co. are being made ready for operation, following an idleness of two years.

British Coal Strike Dominates Market

Continental Business Affected Also—German Exporters Marking Shipments "No Bounty"

(By Cable)

LONDON, ENGLAND, June 14.

THE iron and steel markets are paralyzed by the continued coal stoppage and the situation is becoming more acute. The total production of pig iron and steel is insignificant with only a few engineering plants and sheet mills operating with foreign coal. Pig iron is scarce and the market quiet. Foreign ore continues dull with Bilbao Rubio prices nominal. Finished steel is quiet, especially demand for heavy material, but makers are asking higher prices.

May exports of pig iron totaled 11,798 tons, of which the United States took 55 tons. The total exports of iron and steel were 273,750 tons. The reduction in exports was principally caused by the general strike in the early part of May.

Tin plate is strong with stock material bringing 22s. per base box, and supplies becoming scarce. Forward contracts have been made at 20s. per base box, f.o.b. Some works are still operating on a reduced schedule but all will be obliged to close shortly. Meanwhile orders are being diverted to the United States and the Continent. Galvanized sheets are moderately firm with some business being transacted. Large makers have withdrawn quotations and others are naming September-October as the earliest delivery. Black sheets are quiet.

Continental markets are reflecting the temporary withdrawal of British buyers, but although mills are seeking orders, concessions are not easily obtainable.

German Government Bears Two-Thirds of Loss on Failing Export Credits

LÜBECK, GERMANY, June 1.—Government underwriting of export credits is now effective and is expected to prove of considerable aid in increasing exports, particularly to India and Africa. Business with China and the Far East is not expected to show any considerable increase, as trade with Asia has been on similar terms for some time. This is also true of Central and South American business, which will only be partly aided. In its present form the Government in-

surance of export credits carries premiums of 2 per cent on drafts and 1 per cent on documentary collections. In case of loss two-thirds is borne by the Government and only 1 per cent by the exporter.

Longer Deliveries and More Inquiry Expected to Stiffen Belgian Market—Wages Advanced 5 Per Cent

ANTWERP, BELGIUM, May 29.—Demand is far from satisfactory and the violent fluctuation of the franc in foreign exchange renders maintenance of prices extremely difficult. Mills have continued their endeavor to hold export prices at an unchanged level in pounds sterling, despite the decline in value of the franc, but lack of foreign demand and the general softening of world market prices has rendered this difficult.

In some quarters the more extended deliveries being offered by many mills are pointed to as possibly the beginning of a more stable market and it is also claimed that sellers are beginning to show more resistance to buyers' demands for concessions. Foreign competition, however, continues severe, especially from German mills. Prices are difficult to determine, depending among other circumstances upon the size of backlog of the mill which is quoting. A slight increase in foreign inquiry seems evident, however, and some mills are showing less inclination to make reductions in their originally quoted prices. As a result of the franc depreciation, mills have advanced wages 5 per cent effective June 1.

Pig Iron.—Although the number of transactions is small, the market continues firm with nearly all furnaces well booked to the end of June. Foundry iron is quoted at 500 fr. per ton, furnace, about \$16.15. The higher price of coke, which is selling in the open market at as high as 180 to 185 fr. per ton, tends to maintain pig iron prices at the present level. Syndicate, semi-washed furnace coke is held at 155 fr. per ton.

Semi-Finished Material.—The current market is quiet and the future is largely dependent upon further

British and Continental European prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at \$4.86 per £ as follows:

Durham coke, del'd..	£0 18½s.		\$4.50	
Bilbao Rubio ore f...	1 1	to £1 1½s.	5.16	to \$5.19
Cleveland No. 1 fdy..	3 18	and 3 18½*	18.95	and 19.08*
Cleveland No. 3 fdy..	3 15	and 3 15½*	18.23	and 18.35*
Cleveland No. 4 fdy..	3 14	and 3 14½*	17.98	and 18.10*
Cleveland No. 4 forge	3 12½	and 3 13*	17.62	and 17.74*
Cleveland basic	3 15	and 3 15½*	18.23	and 18.35*
East Coast mixed....	3 17½	to 3 18	18.83	to 18.95
East Coast hematite..	3 16	to 3 16½	18.46	to 18.58
Ferromanganese	15 0		72.90	
*Ferromanganese	14 0		68.04	
Rails, 60 lb. and up..	6 15	to 7 5	32.80	to 35.24
Billets	6 0	to 7 10	29.16	to 36.45
Sheet and tin plate				
bars, Welsh	6 5		30.38	
Tin plates, base box..	1 0	to 1 2	4.86	to 5.35
Black sheets, Japanese				
specifications	13 10	to 14 0	65.60	to 68.04
			C. per Lb.	
Ship plates	7 0	to 7 10	1.52	to 1.62
Boiler plates	9 0	to 11 0	1.95	to 2.39
Tees	7 10	to 8 0	1.62	to 1.73
Channels	6 15	to 7 5	1.46	to 1.57
Beams	6 10	to 7 0	1.41	to 1.51
Round bars, ¾ to 3 in.	7 12½	to 8 2½	1.65	to 1.77
Steel hoops	10 10	and 11 0*	2.28	and 2.39*
Black sheets, 24 gage	10 15	to 11 0	2.33	to 2.39
Galv. sheets, 24 gage.	16 0		3.47	
Cold rolled steel strip,				
20 gage	18 0		3.91	

*Export price.

†Ex-ship, Tees, nominal.

Continental Prices, All F.O.B. Channel Ports

Foundry pig iron:(a)					
Belgium	£3 7s.	to £3 8s.	\$16.28	to \$16.52	
France	3 7	to 3 8	16.28	to 16.52	
Luxemburg	3 7	to 3 8	16.28	to 16.52	
Basic pig iron:(a)					
Belgium	2 18	to 2 19	14.09	to 14.34	
France	2 18	to 2 19	14.09	to 14.34	
Luxemburg	2 18	to 2 19	14.09	to 14.34	
Coke	0 18		4.37		
Billets:					
Belgium	4 5	to 4 7	20.65	to 21.14	
France	4 5	to 4 7	20.65	to 21.14	
Merchant bars:					C. per Lb.
Belgium	4 16	to 5 0	1.05	to 1.08	
Luxemburg	4 16	to 5 0	1.05	to 1.08	
France	4 16	to 5 0	1.05	to 1.08	
Joints (beams):					
Belgium	4 14	to 4 15	1.03	to 1.04	
Luxemburg	4 14	to 4 15	1.03	to 1.04	
France	4 14	to 4 15	1.03	to 1.04	
Angles:					
Belgium	5 2	to 5 4	1.12	to 1.15	
½-in. plates:					
Belgium	5 13½	to 5 17	1.24	to 1.29	
Germany	5 17	to 6 1	1.29	to 1.33	
¾-in. ship plates:					
Belgium	5 1	to 5 7	1.11	to 1.16	
Luxemburg	5 1	to 5 7	1.11	to 1.16	
Sheets, heavy:					
Belgium	6 3	to 6 4	1.35	to 1.37	
Germany	6 3	to 6 4	1.35	to 1.37	

(a) Nominal.

developments in the British strike situation. Buyers are not inclined to pay the quoted prices and mills are maintaining the present level of quotations in expectation of a better market when the British strike is settled. Billets are generally quoted for export at £4 2s. to £4 4s. per metric ton (\$20.35 to \$20.83), and blooms at £3 17s. to £3 18s. per ton (\$19.10 to \$19.33) f.o.b. Antwerp.

Finished Material.—The fluctuations of foreign exchange have affected finished products more than any other market. Makers are asking 800 to 850 fr. per metric ton for bars, but consumers are evidently unwilling to pay more than about 750 fr. per ton. While foreign demand for finished steel is still small, some evidence of improvement is beginning to appear. Mills are fairly well booked with business, but efforts to maintain prices or make even slight advances are met with an immediate decline in purchasing. Some stability in prices, however, is beginning to appear despite keen German competition. Bars for export are quoted at about £4 16s. (\$23.35) per metric ton, beams at £4 13s. (\$22.80), reinforcing bars at £5 5s. (\$25.50), wire rods at £5 7s. 6d. (\$26.35) and steel hoops at £6 5s. (\$30.40) all f.o.b. Antwerp.

Importers Offer Former Terms on German Steel While Awaiting Disposal of Shipments Marked "No Bounty"

NEW YORK, June 15.—Export trade continues quiet except for continued purchasing of rails by Japanese interests. Importers of steel in the United States are moderately active, although sellers of German material are proceeding with caution in view of the Treasury Department decision exacting countervailing duties, effective June 20. As far as is known all German mills shipping steel to the United States are marking the consular invoice "no bounty received." Whether this will entail delay of the shipment pending investigation by the consul is not known. However, one importer in New York has received a consular invoice of a shipment made May 21, which bears the statement that no bounty was paid or received on any part of the tonnage. Importers and the mills in Germany are evidently of the opinion that the "no bounty" statement will be sufficient to permit entry of steel without additional duty, as a few are again offering to contract for tonnages on a basis of c.i.f., duty paid.

Far Eastern business continues small. While the Chinese boycott of British products is still effective, only occasional orders seem to be diverted to American sellers, Continental mills evidently profiting most by this situation. A few purchases of wire shorts are reported to have been made recently in the United States. Inquiries for second-hand plates result in no business, as the lowest quotation by exporters to China is about \$29 per ton, c.i.f., Shanghai, while the Chinese price ideas are about \$23 per ton, c.i.f. One exporter to Japan recently closed on about 140 tons of screw stock to be furnished by an American mill.

The most active market in Japan continues to be railroad permanent way material. A contract for 2 miles of 60-lb. and 5½ miles of 75-lb. rails was recently placed with a large Japanese export house in New York. The Osaka Denke K. K. opened bids June 12 on 3½ miles of 75-lb. sections and Tokio municipality will open bids June 22 on 8 miles of 91-lb., 7-in. high T-rails. Osaka municipality opens bids July 16 on 6½ miles of 91-lb., 7-in. high T-rails, 2½ miles of 92-lb. grooved rails and 3 miles of 102-lb. guard rails. Kyoto municipality is inquiring for 1 mile of 92-lb. grooved rails and 1 mile of 102-lb. guard rails as well as 1300 tie plates.

The South Manchuria Railway Co. is in the market for 3000 corrugated galvanized steel sheets of No. 26 gage. The specifications are understood to be slightly special in dimensions and coating, so that the order might possibly be placed in the United States despite the high tariff. It is estimated that in recent weeks Japanese purchases of rails in the United States have totaled between 20,000 and 25,000 tons.

Bids for furnishing steel superstructures on railroad bridges in Siam will be accepted until Sept. 15, according to advices received by the United States Department of Commerce. The department will provide further information on this contract to American companies referring to No. 209,566.

Japan Forging Ahead Industrially

WASHINGTON, June 15.—Japan is passing through an industrial transition which, after the elapse of perhaps another decade, bids fair to place that country in line with the leading industrial and manufacturing nations of the world, according to Assistant Trade Commissioner R. J. Phillips, who has just returned to Washington from the Tokio office of the Department of Commerce. The natural resources of the country being very limited, Japan appreciates that the only solution of the problem of maintaining herself on a sound economic basis lies in the development of a domestic manufacturing industry sufficiently productive to enable her to sell Japanese made merchandise in foreign markets.

"While Japan still continues to be her own best customer," said Mr. Phillips, "much progress has been made in these directions and today one finds Japan constructing high-tension transmission lines entirely of materials turned out in her own shops, electric locomotives capable of hauling her fastest express trains, many types of construction machinery and machine tools formerly imported, and numerous other products which until within comparatively recent years have been supplied almost entirely from foreign sources. This condition represents only a natural development, however, and the United States may look to Japan for many years to come as a most active market for the sale of a wide variety of American products including automatic and other types of highly specialized machinery, large electric power generating units and their equipment, as well as for certain classes of iron and steel products and raw materials, the domestic demand for which Japan is in many instances entirely dependent upon the outside world to meet."

British Steel Exports Decline, Imports Increase in April

Exports of iron and steel from Great Britain in April at 322,832 tons were much less than the March exports of 411,579 tons. Deducting scrap, the April total was 292,908 tons, or considerably less than the corresponding average for 1925 of 310,900 tons per month. The April data, compared with previous years, are as follows:

	April, 1926	First Quarter, 1926	1925	1913
Pig iron and ferroalloys..	44.9	49.2	46.6	93.7
Iron bars, rods and shapes	2.2	2.9	3.1	11.8
Steel bars, rods and shapes	22.1	22.7	19.8	20.9
Hoops and strips.....	4.8	4.8	5.1	3.8
Plates	12.6	9.9	9.9	11.2
Black plates and sheets..	17.8	28.2	19.5	11.7
Galvanized sheets	53.6	71.6	59.4	63.5
Tin plates and sheets....	40.7	47.2	42.6	41.2
Rails	24.2	24.7	17.3	42.2
Cast tubes, pipes and fittings	11.6	9.9	7.8	19.6
Wrought tubes, pipes and fittings	16.7	21.3	16.0	13.7
Wire and manufactures..	8.9	9.8	9.8	9.6
Total for all exports (except scrap)	292.9	360.8	310.9	414.1

Imports at 298,649 (261,787 tons aside from scrap) were larger than the average for 1925 of 234,900 tons per month (226,750 tons aside from scrap).

The Royal Technical College *Metallurgical Club Journal*, issued by the metallurgical club of the Royal Technical College, Glasgow, Scotland, in its volume No. 5, 1926, contains some interesting articles dealing with ferrous and non-ferrous problems. Among these are "Some Improvements in High-Power Micrography" by Prof. Carl A. F. Benedicks, "Aluminum Alloys and Engineering" by Harry Hyman and "Fire Clay Refractories" by J. F. Hyslop.

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Again the Coal Problem

THERE is renewed interest in the bituminous coal problem. On the one hand is the mass of opinion presented to the House committee on interstate and foreign commerce in its recent hearings. Then the expiration of the Jacksonville agreement on March 31 next has brought up the question among consumers whether they should stock up in the near future against a possible suspension.

Much has been said about "the public interest" in coal. As to the public's right to clamor against periodic cessations of production there can be no question. As to its being rational for the public to complain so much about the spread between the f.o.b. mine price of coal and the price delivered in the householder's cellar there can be much question. The public has been given great masses of so-called information on this subject. It has not been given similar information as to silks, furniture, neckties and various other commodities that are widely bought. Who can say that if statistics were furnished as to the relation between wages paid at necktie factories and retail prices there would not be much more ground for complaint? Selling neckties is supposed to be an agreeable occupation. Trucking coal is not.

This matter of the difference between mining cost and retail price may well be dismissed. Then Secretary Hoover's statement before the House committee will be widely concurred in: "My own belief is that given continuous production the public is amply protected by competitive processes."

Elsewhere in his testimony Secretary Hoover said: "Most of our great industries upon the continuous functioning of which the public is entirely dependent—and there are a half dozen of them—have managed over a course of years to find a solution of their labor relationships which have so effectively assured the public of continuity of production that we forget their very existence."

It is admitted that the bituminous situation has grown worse in the years since the 1922 strike, when it was said there were "too many mines and too many miners." Total capacity has increased since then more than the requirements, and that is due to there being two kinds of mines, union and

non-union. That was the old trouble, 28 years ago, when the check-off was granted by union operators in the hope that non-unionism would be eliminated.

For years the coal industry managed to get along by having recurrent suspensions of mining. These were superficially the result of disagreement, while virtually they occurred by mutual consent. It got to be a regular system for consumers to stock up in fear there would be a suspension, and then for a suspension to be brought about because there were stocks, the suspension improving the market price of coal. The coal trade simply grew accustomed to having strikes or suspensions.

If more attention were given to this history the mental attitudes would be better understood and there would be more hope of bringing men's minds together. It is to be hoped, moreover, that some things have been learned since the Jacksonville agreement was signed that will prevent the repetition of its mistakes.

Better Selling of Steel

IN recent comment, THE IRON AGE suggested that in acquiring better merchandising methods the steel mills should give more study to the normal tonnage requirements of the various classes of buyers, and the position, relative to normal, of the class at the time the selling is attempted. This work is dictated more strongly now than in the past because buyers of today act more according to their own particular circumstances than in the old days of "general buying movements."

Another change in the character of steel buying and selling that dictates more detailed study is the multiplication of specifications involved in an order for a given tonnage. Sellers have been prone to aline the price to be quoted with the total tonnage involved in the order more than with the tonnages of the individual sizes or descriptions contained in it. The principle is that it costs something to enter an order, so that the smaller the tonnage the higher the per ton price must be to include that item.

Of course, the cost of handling an order in the mill is much greater than the cost of handling it

through the order department. It may be cheaper per ton to carry a 100-ton order through the order department than a 50-ton order, but it may be much cheaper per ton at the mill to handle a 50-ton order of five sizes than a 100-ton order of 20 sizes. Single carload business may be of a character quite advantageous at the mill, while the cost of handling the steel for a customer who contracts for a considerable tonnage, but is retail when it comes to specifying, may be much greater.

Not precisely a new development, but a trend that has made a great change in the aggregate, is that of the mills carrying more stock and making a larger proportion of the shipments from stock instead of from direct rolling. The character of the business done in the past five months was in various lines quite different even from that in the same months of last year. It has been commonly remarked in the trade this year that buyers expect the mills to carry the stocks, instead of the buyers, whether jobbers or manufacturers, providing for their requirements by carrying stocks. We may certainly expect this trend to continue and make a still greater change.

With the increase in the proportion of such shipments from stock, correspondingly more information as to the cost of shipping in that manner must needs be in the hands—and in the mind—of the salesman when negotiating the sale. Incidentally, there may be room for improvement in warehouse methods, when mill stocks are to be a more important factor than in past years in the mill's business.

In connection with this carrying of stock, the matter we have heretofore referred to comes up, that of the mill knowing more precisely and comprehensively the channels of consumption into which its steel goes. This would aid in determining how much of a size or description of steel should be carried in stock at a given time. All such work will help toward better merchandising methods.

Diplomas for Craftsmanship

JUST as our colleges are graduating thousands of young men and women from courses in arts and sciences, a number of American industries are holding graduation exercises for apprentices who have mastered the fundamentals of their crafts. With the formal recognition of the dignity of craftsmanship there is less disposition to exalt the "white collar" job and a much needed revival of the pride of workmanship which was fostered by the old guilds.

In an industrial era in which so much depends upon mastering technique, one gets great satisfaction in knowing that he has succeeded in coordinating hands and brains to do a task well. Regarding recent graduation exercises for apprenticeship promotion in the Union Malleable Iron Co., East Moline, Ill., C. Howard Ross, manager, reported as follows to G. K. Wilson, labor department, Deere & Co., Moline, Ill.:

The entire personnel of all departments assembled in the plant when 49 young men received promotions and diplomas. The graduation exercises included speeches of congratulation and encouragement on the part of company officials. A short speech of instruction, comparing old and new methods of apprenticeship training, was made by a molder of

33 years' experience. The response came from a junior journeyman who expressed in very acceptable terms the hopes, ambitions and appreciation of the graduating class.

The "junior journeyman" molder in this plant is an intermediate step between class A apprentice and journeyman molder. The qualifications set up for this rank are: "One year's experience, 50 jobs, scrap under 4 per cent, earnings \$6 a day, demonstrated mentality to absorb class-room work, and an amiable personal make-up, with unquestioned ability as a future high-grade mechanic, and leanings toward possible appointment on the supervisory force."

The feeling of confidence which these junior journeymen have gained is not to be underestimated as an important psychological influence on their subsequent careers. The need is for a wider dignifying of labor, and testimony of the sort here reported is a help. It would be interesting to hear from others who have had experiences like those which have turned out so well at East Moline.

Some Trends in Galvanizing

FOR a series of years the American Bureau of Metal Statistics, Dr. W. R. Ingalls, director, has been collecting statistics of the galvanizing industry of the United States, and practically all of the galvanizers of the country have cooperated, furnishing their individual data with much detail. This is an important piece of statistical work. If any branch of the iron and steel industry ought to know more in regard to itself it is the galvanizing branch.

The American Bureau of Metal Statistics classifies galvanizing as follows: sheets, tubes, wire, wire cloth and shapes. The last is a broad classification, including such things as pole-line hardware, hollow ware, chains and all miscellaneous articles.

In the aggregate the galvanizers of the United States used 286,000 net tons of spelter in 1925. This was by far the largest single use of spelter. It was also the largest use of spelter for this purpose since this statistical investigation was instituted (in 1919), and probably was the largest there ever was. About 50 per cent of the total use of zinc in galvanizing was for sheets. A little more than 20 per cent was for tubes. Next in order is wire. All of the other uses, quantitatively, are relatively subordinate.

In almost every branch of galvanizing there was a large increase in 1925 as compared with 1924. This reflected increase in the quantity of products made, especially sheets and tubes, rather than any increase in the quantity of spelter used per unit of product. In this connection it is interesting to note the large increase in the exportation of galvanized sheets in 1925 as compared with 1924. All told the exportation of galvanized products removed from the United States in 1925 about 22,000 tons of zinc in the form of coating, which corresponds with about 10 per cent of the spelter used, making allowance for the by-products—dross, skimmings and ashes—in the process.

The percentage of zinc passing into these by-products is large. It is about 25 per cent in tube

galvanizing, about 30 per cent in wire galvanizing and runs up to 40 per cent and more in some of the miscellaneous galvanizing. This is a subject to which galvanizers should give careful attention, for although the zinc that is drossed and oxidized is recovered and reworked, the recovery is in a much less valuable form than that in which the zinc is purchased.

Another interesting and important revelation is the percentage that the zinc coating of galvanized goods bears to the weight of the goods themselves. Over this subject there has been much controversy. It has been alleged that American galvanizers have improperly thinned their coatings and that inferiority of American galvanized products is largely ascribable to that bad practice. Without any doubt there has been ground for complaint in regard to this. Were it not so there would not have been so much agitation to require the weight of zinc coating to be stamped on galvanized goods according to the "truth in fabric" principle.

The statistics do not make any positive disclosure upon this point. The average coating of sheets and tubes was less in terms of percentage in 1925 than in 1924; of wire, a little more. These quotients, however, do not give any idea as to the thickness of coating. The percentages in terms of weight may be affected more or less by changes in the average thickness, size or diameter of the sheets, tubes and wire produced. The Bureau arrives at the zinc coating by aggregating the spelter put into the pots and deducting what is taken out in dross, skimmings and ashes, the difference being what goes on to the article galvanized. This is a correct method, both statistically and technically, but in order to make any deduction as to the thickness of zinc coating it would be necessary to know the total surface of goods galvanized.

In this connection it is to be thought that perhaps the thickness of zinc coating is not the only factor governing durability. Other things being equal, a piece of steel coated more thickly with zinc will undoubtedly resist the weather longer than a piece of the same material less thickly protected. It is also probable that a relatively thin coating, well done mechanically with the use of good spelter, will last longer than a relatively thick coating badly done, with the use of an inferior spelter. American galvanizing is highly developed from the mechanical standpoint, both as to economy and efficiency in the act. It is to be doubted, however, whether American galvanizers, or European for that matter, are as good metallurgists as they are mechanical operators.

The subject of spelter for galvanizing is one that has received but little scientific attention. The ordinary prime western spelter, which is the lowest grade of virgin metal, goes to the galvanizers. Some of the latter use remelted spelter; that is even lower grade. A few years ago electrolytic spelter was in excessive supply and the great American producer of that grade was constrained to offer its product at the price of prime western. One or more of the galvanizers complained of this metal and the producer conformed

to the desire of its customers by deliberately adulterating its high-grade product with the addition of pig lead, following which everybody was happy.

Since then electrolytic spelter has commanded a premium, which it still does, the brass makers taking the major part of it, wherefore it is no longer offered to galvanizers on prime western terms. Nevertheless, it is rather nonsensical to imagine that high-grade spelter is unsuitable for galvanizing. For many years, indeed, it has been the only spelter that has been permitted for the galvanizing of wire for telegraph and telephone purposes, for nothing but a spelter of such ductility will resist cracking when subjected to the sharp bending that such wire must undergo.

In fact, insufficient attention has been given to the nature of the spelter to be used for galvanizing. The coating on the rims of automobile wheels is commonly done by electrogalvanizing. This puts on a very thin coating of zinc that is of high grade after it has been deposited. Automobile rims weather pretty well, although they are exposed to severe conditions.

This suggests reflection in regard to certain metallurgical experience. In depositing zinc in electrolytic plants the cathodes are subject to resolution, wherefore the current efficiency is never 100 per cent, as theoretically it should be, but in the best practice may be something like 90 per cent. Electrometallurgists know that this is ascribable to the deposition of metallic impurities as specks, which become the foci of chemical corrosions, the presence of very minute proportions of such impurities being responsible for starting such action. This is explainable in precisely the same way as the observation of primary students of chemistry in the laboratory that ordinary zinc dissolves rapidly in acid while pure zinc dissolves but slightly. It may be that the deterioration of some galvanized coatings is explainable in a similar way.

New Plant of Ajax Electrothermic Corporation

The Ajax Electrothermic Corporation, Trenton, N. J., is moving into its new plant at Ajax Park, N. J., where it has improved facilities for developing and manufacturing its high frequency induction furnaces. In this new plant the company expects to furnish laboratories with furnaces which are smaller and less expensive than some which they have built before, and it is also proceeding to build larger furnaces for melting, heat treating, annealing, etc., by high frequency induction. Plans also include the manufacture of alloys, both ferrous and non-ferrous, for special purposes.

The plant is adjacent to the new Ajax Park station of the Philadelphia & Reading Railroad. This station was formerly known as Fernwood. It is located about three-quarters of a mile from Trenton Junction and about two miles from the Reading Terminal in Trenton.

To Erect Structural Mill

About four acres of property has been purchased adjoining the furnace and works of the Pulaski Foundry & Mfg. Corporation, Pulaski, Va., by Arthur G. McKee & Co., Cleveland, on which will be erected a rolling mill for structural material. The new mill will be controlled by the McKee company, which is a controlling interest in the Pulaski Foundry & Mfg. Corporation.

Railroad Supply Exhibition Large

Shop Equipment Forms More Than Fourth of Products Shown at Atlantic City Exposition—Iron and Steel Companies Represented

WITH more than 400 exhibitors and 145,600 sq. ft. of space, the exhibition of the Railway Supply Manufacturers' Association, held at Atlantic City, N. J., June 9-16, reached a high mark.

The exhibition was held simultaneously with the conventions of Division V, Mechanical (master car builders and master mechanics), and Division VI, Purchases and Stores, of the American Railway Association. The registration was more than 8500, but the attendance at the exhibition is estimated to have been well above 10,000.

Exhibits were housed not only on the Million Dollar Pier, as heretofore, but also in Machinery Hall, a building erected opposite the pier especially for the machine tool and heavy machinery exhibits, and containing 25,025 sq. ft. of floor space. In addition there was a motor transport exhibit, a new feature, which included passenger motor buses and gasoline freight trucks. This was housed in a tent 150 x 180 ft., located between the two railroad sidings that made up the track exhibit space. The track exhibit was on sidings on Mississippi and Georgia Avenues, adjacent to the boardwalk, as in previous exhibitions, but was much larger than heretofore. It included five steam locomotives; three gas-electric locomotives; two oil-electric locomotives; one electric locomotive; one gas rail car train and 14 freight cars of various types, including a 20,361-gal. tank car.

The products displayed ranged from the locomotives and cars to the smallest of supplies. A wide variety of shop equipment, from heavy machinery and materials handling equipment to small tools, was also on view. Machine tools, an impressive part of the exhibition as a whole, were for the most part of latest design. Several of them had been placed on the market only recently. They were shown in operation on railroad shop work. Most of the machines displayed have been described at length in THE IRON AGE.

Latest Models of Machine Tools Shown

One of the largest exhibits was that of the Niles-Bement-Pond Co., New York, which had in operation its new 90-in. journal turning machine, a 90-in. quartering machine, a 42 x 42 in. x 10 ft. Time Saver planer, a 27 in. x 16 ft. Time Saver engine lathe and its improved 48-in. car wheel borer. The Pratt & Whitney Co., division of the Niles company, also had a large display, which included two sizes of its Model B lathe, a 12-in. vertical shaper, Model B; a jig borer; a 14-in. vertical surface grinder, and a large exhibit of small tools and gages.

The exhibit of the Manning, Maxwell & Moore Co., Inc., New York, was also comprehensive. It included a Micro F G cylinder grinding machine; a Micro portable crankpin grinder; a Micro portable frame jaw milling machine; two Monarch lathes; a Columbia shaper; a Putnam axle lathe burnisher; a Putnam 48-in. car wheel borer; Sheldon grinders; a Foster 2-B turret lathe and a W. F. & J. Barnes drilling machine. Models of Shaw cranes were shown and a No. 2 National Machinery Co. high-duty forging machine in operation was a feature. The National company's 1½-in. triple bolt cutter and a die sharpener were also on view, as well as a heavy-duty guide and face grinder of the Bridgeport Safety Emery Wheel Co. The new "mechanical sledge" smithing hammer of the Chambersburg Engineering Co. was also demonstrated.

A Newton crank planer, with side head; a Colburn boring mill; a Colburn D-6 heavy-duty drill press, and a Betts-Bridgeford lathe were among the tools exhibited by the Consolidated Machine Tool Corporation of America, Rochester, N. Y.

Joseph T. Ryerson & Son, Inc., Chicago, had several tools in operation. These included its inclined rail drill, a Ryerson-Conradson geared-head engine

lathe, an Ohio shaper, the Swift Electric Welder Co.'s flue welder, and spring forming machines. Four machines, a 32-in. Cincinnati Climax shaper, a No. 250 Giddings & Lewis firebox drilling machine, a 24-in. Bradford lathe and a No. 4 Ohio heavy-duty plain miller, were exhibited by the Swind Machinery Co., Philadelphia.

A new design of oil groove milling machine, intended generally for milling grooves in crown brasses but adapted to other work, was displayed by the Lehman Machine Co., St. Louis. A Lehman 22-24½-in. lathe with improved taper attachment and improved type clutch was also on view.

Another machine to make its first appearance was a 24-in. heavy service back-geared crank shaper, which is being placed on the market by the American Tool Works Co., Cincinnati. New features include automatic forced lubrication, hardened alloy-steel gears, helical gear bull wheel, Timken roller bearings throughout, multiple-disk clutch in oil, multiple-splined shaft, improved feed mechanism and stroke change mechanism, and dovetail ram bearings. The company's 3-ft. and 6-ft. triple-purpose plain radial drills, a 3-ft. high-speed sensitive radial, a 24-in. lathe and a 14-in. lathe, were also displayed.

Two vertical turret lathes, one 24 in. and the other 54 in., were exhibited by the Bullard Machine Tool Co., Bridgeport. A new feature is a special new type locking ring.

Four machines, a 21-in. and 30-in. heavy-duty geared head lathes, an 11-in. rapid production lathe, and a No. 1 universal toolroom grinder, were shown by the R. K. LeBlond Machine Tool Co., Cincinnati. The 30-in. lathe was equipped with Allis-Chalmers Texrope drive from the motor to the machine, a new feature, and also with rapid power traverse to the carriage.

Several turret lathes were exhibited. The Warner & Swasey Co., Cleveland, had its new No. 3A 7½-in. capacity machine in operation, and also its No. 2A turret lathe, and several of its portable pneumatic tools. A Hartness flat turret lathe, bar machine and a 17-in. chucking Hartness flat turret lathe were among the exhibits of the Jones & Lamson Machine Co., Springfield, Vt., which showed also ground taps, die heads, a J & L staybolt attachment and bench-type screw thread Comparator.

The Gisholt Machine Co., Madison, Wis., exhibited three turret lathes, a 28 x 9¼ in. No. 4L, a 21 x 4¼-in. No. 3L, and a 2¼ x 10-in. No. 4B. The company's internal and valve link grinder was also in operation. The International Machine Tool Co., Indianapolis, exhibited a 12¼-in. bore Libby turret lathe.

A 36-in. Maximum Service planer of the G. A. Gray Co., Cincinnati, was in operation and also two radial drilling machines of the Carlton Machine Tool Co., Cincinnati. The Lucas Machine Tool Co., Cleveland, exhibited its No. 43 Precision horizontal boring, drilling and milling machine on view and its 50-ton power forcing press. A center of interest was the new No. 4B plain milling machine of the Kearney & Trecker Corporation, Milwaukee, which also had a No. 4B vertical miller in operation. Demonstrations were made, the record of the cuts being kept on a large poster for inspection by visitors.

Several draw-cut shapers were shown by the Morton Mfg. Co., Muskegon Heights, Mich., including its improved No. 4 heavy-duty machine, among the new features of which is greater distance between table and ram, automatic oiling, new cone design, rapid power traverse and rapid change feed gear and lever. A journal bearing finishing miller was also exhibited.

Descriptions of other exhibits will have to be deferred to a later issue. Conspicuous among these were displays of grinding, sawing, punching and shearing machinery and hydraulic presses.

Iron and Steel Markets

New Business in Good Volume

Railroad Demand Still a Feature—A \$2 Advance in Structural Steel—Pig Iron Sales in Middle West 175,000 Tons—German Dumping Alleged

FOR another week the balance of steel market developments has been on the side of betterment. New orders and specifications for finished steel showed an increase. Two producers of structural steel began quoting at an advance of \$2 a ton. The Steel Corporation's reduction of 218,000 tons in unfilled orders in May pointed to somewhat larger bookings in that month than had been commonly reckoned. The week's operating schedules of the leading steel companies were practically unchanged.

With several large producers the second week of June was the best in orders since late March, strengthening the opinion lately held that midsummer output will be considerably larger than the average of the past two years.

Primary markets have been increasingly active. Pig iron transactions in the Middle West amounted to 175,000 tons, and in heavy melting steel scrap Philadelphia and Pittsburgh transactions were the largest in several weeks.

Railroad buying confirmed the better indications of the previous week. The Pennsylvania Railroad came out with inquiries totaling 30,000 tons, including 15,000 tons of plates, 6000 tons of steel bars and large track supply requisitions. The Southern Pacific added 12,000 tons of rails to its purchases of the previous week, making the total 32,000 tons. The Great Northern and the Southern Railway are each asking for 10,000 tons of rails.

The firmer stand of bar and structural mills on third quarter business is construed as in part a defensive measure against the sagging tendency of the midsummer months, the expectation being that by mid-August crop prospects may be definite enough to insure the further continuance of the present levels.

Structural awards in the past week show a slight decline at 25,000 tons. Bridge lettings of the Pennsylvania Railroad and Southern Railway amounted to 4600 tons. New inquiries total 17,000 tons.

Upward of 40,000 tons of basic iron for a Southern Ohio steel company and 22,000 tons of foundry iron for the Louisville plant of the Standard Sanitary Mfg. Co. are the largest pig iron transactions of the week. The low prices recently made in the sharp competition in Ohio,

Indiana and Michigan districts evidently proved attractive to foundry buyers. However, Chicago and Eastern markets have been only moderately active.

In New England both new and established brands of pig iron have been pressed for sale. British iron is no longer a market factor and less German iron is being offered, in view of the pending complaint under the anti-dumping act.

The latest turn in connection with German iron and steel imports to the United States is the sending of a "note," rather than a "protest," from the German embassy at Washington to the State Department, pointing out that the German steel makers' bonus does not fall under section 303 of the tariff act of 1922.

A new turn in respect to German pig iron imports is an effort by pig iron producers in this country to have the Treasury Department proceed under the anti-dumping act. It is claimed that the prices at which German pig iron has been sold in this country in recent months, figured back to the point of production, would be several dollars a ton below German domestic prices.

It is understood, also, that the Treasury Department has been asked to apply the anti-dumping act to the 15,000 tons of Krupp rails, bought in February by the Boston & Maine Railroad and now coming in at Boston.

The paralysis of the British iron and steel industry resulting from the continued coal stoppage leads makers in Great Britain to believe business is being diverted to the United States. So far it has been a matter chiefly of increased inquiry but only for small lots. Japan, to mention one usually large buyer, appears to be waiting in the hope of low prices when British resumption will call for a heavy booking of business. An interesting sale by an American mill is that of 1000 base boxes of tin plate to a British bottle cap maker.

Advance in steel plates is responsible for an increase from 2.410c. to 2.417c. in THE IRON AGE composite price for finished steel. It still is about 1 per cent lower than a year ago.

Pig iron remains at \$19.79, according to THE IRON AGE composite price. This is 50c. below one month ago, but 58c. (3 per cent) above one year ago.

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics
At Date, One Week, One Month, and One Year Previous

For Early Delivery

Pig Iron, Per Gross Ton:	June 15, 1926	June 8, 1926	May 18, 1926	June 16, 1925
No. 2X, Philadelphia...	\$22.76	\$22.76	\$22.76	\$21.26
No. 2, Valley Furnace...	18.00	18.00	19.00	18.00
No. 2, Southern, Cin'ti...	24.19	24.69	25.69	23.05
No. 2, Birmingham, Ala...	21.00	21.00	22.00	20.00
No. 2 foundry, Chicago...	21.00	21.00	21.50	20.00
Basic, del'd, eastern Pa...	21.25	21.75	21.75	21.50
Basic, Valley furnace...	18.00	18.00	18.50	18.00
Valley Bessemer del. P'gh.	20.76	20.76	21.26	20.76
Malleable, Chicago...	21.00	21.00	21.50	20.00
Malleable, Valley...	18.00	18.00	19.00	18.50
Gray forge, Pittsburgh...	19.26	19.26	20.26	19.26
L. S. charcoal, Chicago...	29.04	29.04	29.04	29.04
Ferromanganese, furnace...	88.00	88.00	88.00	115.00

Rails, Billets, etc., Per Gross Ton:	June 15, 1926	June 8, 1926	May 18, 1926	June 16, 1925
O.-h. rails, heavy, at mill.	\$43.00	\$43.00	\$43.00	\$43.00
Light rails at mill.	34.00	34.00	34.00	38.08
Bess. billets, Pittsburgh...	35.00	35.00	35.00	35.00
O.-h. billets, Pittsburgh...	35.00	35.00	35.00	35.00
O.-h. sheet bars, P'gh...	36.00	36.00	36.00	35.00
Forging billets, base, P'gh	40.00	40.00	40.00	40.00
O.-h. billets, Phila...	40.30	40.30	40.30	40.17
Wire rods, Pittsburgh...	45.00	45.00	45.00	46.00
	Cents	Cents	Cents	Cents
Skelp, gr. steel, P'gh, lb...	1.90	1.90	1.90	1.90

Finished Iron and Steel, Per Lb. to Large Buyers:	June 15, 1926	June 8, 1926	May 18, 1926	June 16, 1925
Iron bars, Philadelphia...	2.22	2.22	2.22	2.22
Iron bars, Chicago...	2.00	2.00	2.00	2.00
Steel bars, Pittsburgh...	2.00	2.00	1.90	2.00
Steel bars, Chicago...	2.10	2.10	2.10	2.10
Steel bars, New York...	2.34	2.34	2.24	2.34
Tank plates, Pittsburgh...	1.90	1.85	1.85	1.90
Tank plates, Chicago...	2.10	2.10	2.10	2.20
Tank plates, New York...	2.24	2.24	2.24	2.14
Beams, Pittsburgh...	1.90	1.90	1.90	2.00
Beams, Chicago...	2.10	2.10	2.10	2.20
Beams, New York...	2.24	2.24	2.24	2.34
Steel hoops, Pittsburgh...	2.50	2.50	2.50	2.40

*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.
†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market reports on other pages.

Sheets, Nails and Wire, Per Lb. to Large Buyers:	June 15, 1926	June 8, 1926	May 18, 1926	June 16, 1925
Sheets, black, No. 28, P'gh	3.10	3.10	3.15	3.15
Sheets, black, No. 28, Chi-				
cago dist. mill.	3.25	3.25	3.35	3.25
Sheets, galv., No. 28, P'gh	4.30	4.30	4.40	4.25
Sheets, galv., No. 28, Chi-				
cago dist. mill.	4.50	4.50	4.60	4.35
Sheets, blue, 9 & 10, P'gh	2.30	2.35	2.40	2.30
Sheets, blue, 9 & 10, Chi-				
cago dist. mill.	2.40	2.40	2.60	2.35
Wire nails, Pittsburgh...	2.65	2.65	2.65	2.70
Wire nails, Chicago dist.				
mill	2.70	2.70	2.70	2.75
Plain wire, Pittsburgh...	2.50	2.50	2.50	2.50
Plain wire, Chicago dist.				
mill	2.55	2.55	2.55	2.60
Barbed wire, galv., P'gh...	3.35	3.35	3.35	3.45
Barbed wire, galv., Chi-				
cago dist. mill.	3.40	3.40	3.40	3.55
Tin plate, 100 lb. box, P'gh	\$5.50	\$5.50	\$5.50	\$5.50

Old Material, Per Gross Ton:	June 15, 1926	June 8, 1926	May 18, 1926	June 16, 1925
Carwheels, Chicago	\$15.00	\$15.00	\$15.00	\$17.75
Carwheels, Philadelphia...	17.00	17.00	17.00	17.00
Heavy steel scrap, P'gh...	16.00	15.50	15.50	17.00
Heavy steel scrap, Phila...	15.00	15.00	15.00	15.00
Heavy steel scrap, Ch'go...	12.25	12.00	12.00	15.75
No. 1 cast, Pittsburgh...	16.00	16.00	16.50	17.00
No. 1 cast, Philadelphia...	17.00	17.00	17.00	17.50
No. 1 cast, Ch'go (net ton)	16.00	15.75	15.75	17.50
No. 1 RR. wrot. Phila...	16.50	16.50	17.00	18.00
No. 1 RR. wrot. Ch'go (net)	11.50	11.00	11.00	15.00

Coke, Connellsville, Per Net Ton at Oven:	June 15, 1926	June 8, 1926	May 18, 1926	June 16, 1925
Furnace coke, prompt...	\$2.75	\$2.90	\$2.90	\$2.75
Foundry coke, prompt...	4.00	4.00	4.00	3.75

Metals, Per Lb. to Large Buyers:	June 15, 1926	June 8, 1926	May 18, 1926	June 16, 1925
Lake copper, New York...	14.12½	14.00	14.00	13.75
Electrolytic copper, refinery	13.75	13.57½	13.62½	13.50
Zinc, St. Louis...	7.25	7.05	6.85	7.02½
Zinc, New York...	7.00	7.40	7.20	7.37½
Lead, St. Louis...	8.00	7.47½	7.50	8.00
Lead, New York...	8.25	7.65	7.75	8.35
Tin (Straits), New York...	61.00	58.75	62.00	56.25
Antimony (Asiatic), N. Y.	10.50	11.50	12.00	16.50

Pittsburgh

Advances on Shapes in a Stronger Market —Heavy Melting Scrap Up 50c.

PITTSBURGH, June 15.—Developments of the week in the steel trade have been encouraging to the mills. Not only has the volume of new orders and specifications shown an increase, but the price situation has exhibited signs of strengthening. News of the advance of \$2 a ton on structural shapes by the Bethlehem Steel Co. was received here with interest, and while its immediate effect may be merely to drive in hesitating tonnage at 1.90c., it is a move which other steel companies have been considering. The Jones & Laughlin Steel Corporation, within 24 hr. after the Bethlehem announcement decided to raise its price on shapes to 2c. per lb. to take effect at once. Following the recent advance on steel bars to 2c., which is now effective on all business for third quarter, the strengthening of these prices, it is believed, will give the mills somewhat larger orders to carry through the summer months than might otherwise have been expected.

No advance in plate prices is foreshadowed, but the market is firm at 1.90c., and only special buyers, such as the railroad car companies, are able to better that figure. At least one or two mills are making no commitments on plates, shapes and bars for all of third quarter, but are limiting contracts to July and

August in the expectation that the volume of business in the late summer or early fall will be sufficient to enable them to obtain more for their steel than would be possible during mid-summer. Sheets continue to be the weak spot on the market, but even in sheet prices there is a little more stability in that on some grades they have reached such a low point as to be recognized by both buyers and sellers as the probable minimum, and sales in the last week have been more numerous.

In the volume of steel buying the second week of June achieved a record that is unusual for this time of year. There was an increased amount of buying of pipe, plates, sheets and hot and cold-rolled strip steel, in particular, but of some other products as well. One of the leading interests has not had so good a week since the middle of March, and the orders of other companies have generally exceeded those of any previous week within 60 days at least.

Increased orders have come from the automobile industry, some motor plants having increased their operating schedules following the recent setback in sales of automobiles due to weather conditions. Most of the automobile companies, excepting the Ford Motor Co., which is not above a 50 to 60 per cent operation, are working at a fairly full rate. At least five new models of car bodies are to be in process shortly and will require considerable sheet tonnage.

Pipe mills are exceedingly busy, working at 85 per cent or more, and the excellence of the demand for pipe is shown by the fact that the Youngstown Sheet

& Tube Co. on Monday started up the lap-weld furnaces at its Zanesville, Ohio, works, a high cost plant that is not used except when all other capacity is fully occupied. Tin plate shipments for the first half of the year will break all records.

The turn for the better in the steel market, particularly with summer coming on, has created a renewed feeling of confidence that business will be fairly well sustained throughout July and August, when a slump is usually expected, and that the outlook for high production over the last four months of the year is exceedingly good. In the past week steel plant production in the Pittsburgh and Valley districts has been maintained at the average of the preceding week, 70 per cent, and at some plants there is a slight increase.

In the scrap market there has been a turn upward on limited buying, and the tone is decidedly better.

Pig Iron.—With the exception of 22,000 tons of Ohio iron bought by the Standard Sanitary Mfg. Co. for its Louisville plant, Pittsburgh consumers of iron have shown little interest in the market in the past week. The Standard Sanitary purchase was at \$19, furnace, the business being divided among three Ohio producers. This brings the total the company has under contract for last half to 55,000 tons. There have been sales of foundry, Bessemer and low phosphorus grades for third quarter and for prompt shipment in lots ranging from a carload to a few hundred tons, but the aggregate has not been large. Inquiry is a little better, but many consumers are not able to take advantage of the present low prices because they have already covered their requirements as far ahead as their own order books warrant them in doing. Sales of foundry iron within the week were all at \$18, Valley furnace, this price applying even on carload lots. Bessemer iron went at \$19, and on low phosphorus iron the price is unchanged at about \$27, delivered in this district. The only basic iron transaction was in the nature of a trade deal and was not given any publicity. It involved several thousand tons. The American Brake Shoe & Foundry Co., which buys in New York, wants 4700 tons of carwheel iron for its Pittsburgh plant and 1300 tons of the same grade for Cleveland.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being \$1.76 per gross ton:

Basic	\$18.00
Bessemer	19.00
Gray forge	17.50
No. 2 foundry	18.00
No. 3 foundry	17.50
Malleable	18.00
Low phosphorus, copper free	27.50

Ferroalloys.—Most of the ferromanganese contracts made early in the year were for the full year, and where only for six months, they have been renewed by one producer at \$88, furnace.

Semi-Finished Steel.—Some of the sheet companies which buy their sheet bars in the open market are bringing pressure to bear on their sources of supply to lower prices on sheet bars to enable them to "live" on the basis of present selling prices of sheets. There have been reports that they have been successful, but this is vigorously denied by sellers. A factor in the situation is that most of the makers of sheet bars also make sheets and in heeding the requests of buyers for lower sheet bar prices they would be creating more competition for themselves on sheets, as it was some of the smaller mills which led in the decline of sheet prices.

Wire Products.—Although wire mills are operating at scarcely more than 50 per cent of capacity, prices continue to hold fairly firm, since the mills have been convinced after months of rather slow business in this department that concessions are of little or no avail in increasing the amount of tonnage. Stocks in the hands of distributors and consumers are reported to be very low, but the mills are still carrying good-sized stocks of nails and fencing. Buyers, being cognizant of this situation, are ordering in small amounts for quick shipment. Prices are given on page 1741.

Rails and Track Supplies.—Specifications against contracts for rails and track supplies are in fair volume, but there is little new business.

Tubular Goods.—Present indications are that May and June will prove the banner months of the year in the buying of pipe. Orders in the last week have shown a gain, and the situation from every viewpoint is satisfactory to the mills. The oil business is in the best condition it has been in some time, and consequently the flow of orders from that source is fairly regular and in good volume. The great building activity of this year and last is constantly creating new demands for gas mains, and at this time this is productive of many orders. Jobbers have been replenishing stocks freely, since the lateness of the spring delayed the moving of pipe out of warehouses by 30 days or more. The talked-of gas line from Amarillo, Tex., to Denver, Colo., which, if carried out, would call for a large tonnage, has not yet reached the point of being a definite possibility. Discounts are being well maintained and operations of mills on the average continue at around 85 per cent of capacity. Discounts are shown in page 1741.

Sheets.—Orders for sheets have come in at an improved rate in the last week. With prices declining, as they have been in recent weeks, buyers have withheld buying in the hope of making their next purchases at somewhere near the bottom of the market, and there are evidences that many consumers and jobbers have permitted their stocks to run too low. This is indicated by the frequency of requests for rush shipments. The sheet mills look for a continued improved demand from the automobile industry, which is now getting into a better stride following the setback it has experienced because of unsatisfactory weather conditions for the sale of cars. It is stated that automobile body companies are now working, or soon will be, on five new models of car bodies which will

THE IRON AGE Composite Prices

Finished Steel

June 15, 1926, 2.417c. Per Lb.

One week ago	2.410c.
One month ago	2.403c.
One year ago	2.439c.
10-year pre-war average	1.689c.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets. These products constitute 88 per cent of the United States output of finished steel.

High	Low	High	Low
1926 2.453c.	Jan. 5: 2.403c.	May 18	
1925 2.560c.	Jan. 10: 2.396c.	Aug. 18	
1924 2.789c.	Jan. 15: 2.460c.	Oct. 14	
1923 2.824c.	April 24: 2.446c.	Jan. 2	

Pig Iron

June 15, 1926, \$19.79 Per Gross Ton

One week ago	\$19.79
One month ago	20.29
One year ago	19.21
10-year pre-war average	15.72

Based on average of basic and foundry irons, the basic being Valley quotation, the foundry an average of Chicago, Philadelphia and Birmingham.

High	Low	High	Low
1926 \$21.64	Jan. 5: \$19.79	June 8	
1925 22.50	Jan. 13: 18.96	July 7	
1924 25.88	Feb. 26: 19.21	Nov. 3	
1923 30.86	March 20: 20.77	Nov. 20	

Mill Prices of Finished Iron and Steel Products

Iron and Steel Bars

Soft Steel

	Base Per Lb.
F.o.b. Pittsburgh mills.....	2.00c. to 2.10c.
F.o.b. Chicago	2.10c. to 2.20c.
Del'd Philadelphia.....	2.32c.
Del'd New York.....	2.34c.
Del'd Cleveland.....	2.19c.
F.o.b. Birmingham	2.15c. to 2.25c.
C.i.f. Pacific ports.....	2.35c.
F.o.b. San Francisco mills.....	2.35c. to 2.40c.

Billet Steel Reinforcing

F.o.b. Pittsburgh mills.....	2.00c. to 2.10c.
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Rail Steel

F.o.b. mill	1.80c. to 1.90c.
F.o.b. Chicago	2.00c.

Iron

Common iron, f.o.b. Chicago.....	2.00c.
Refined iron, f.o.b. P'gh mills.....	3.00c.
Common iron, del'd Philadelphia.....	2.22c.
Common iron, del'd New York.....	2.24c.

Tank Plates

Base Per Lb.

F.o.b. Pittsburgh mill.....	1.90c.
F.o.b. Chicago	2.10c. to 2.20c.
F.o.b. Birmingham	2.00c. to 2.10c.
Del'd Cleveland	2.09c.
Del'd Philadelphia	2.22c.
Del'd New York	2.24c.
C.i.f. Pacific ports.....	2.25c. to 2.30c.

Structural Shapes

Base Per Lb.

F.o.b. Pittsburgh mill.....	1.90c.
F.o.b. Chicago	2.10c. to 2.20c.
F.o.b. Birmingham	2.05c. to 2.15c.
Del'd Cleveland	2.09c. to 2.19c.
Del'd Philadelphia	2.22c.
Del'd New York	2.24c.
C.i.f. Pacific ports.....	2.30c. to 2.35c.

Hot-Rolled Flats (Hoops, Bands and Strips)

Base Per Lb.

All gages, narrower than 6 in., P'gh.....	2.50c.
All gages, 6 in. and wider, P'gh.....	2.30c.
All gages, 6 in. and narrower, Chicago.....	2.60c.
All gages, wider than 6 in., Chicago.....	2.50c.

Cold-Finished Steel

Base Per Lb.

Bars, f.o.b. Pittsburgh mills.....	2.50c.
Bars, f.o.b. Chicago	2.50c.
Bars, Cleveland	2.55c.
Shafting, ground, f.o.b. mill.....	2.70c. to 3.00c.
Strips, f.o.b. Pittsburgh mills.....	3.75c.
Strips, f.o.b. Cleveland mills.....	3.60c. to 3.75c.
Strips, delivered Chicago	4.05c.
Strips, f.o.b. Worcester mills.....	4.05c.

*According to size.

Wire Products

(To jobbers in car lots f.o.b. Pittsburgh and Cleveland)

Base Per Keg

Wire nails	\$2.65
Galv'd nails, 1-in. and longer.....	4.65
Galv'd nails, shorter than 1 in.....	4.90
Galvanized staples	3.35
Polished staples	3.10
Cement coated nails	2.65

Base Per 100 Lb.

Bright plain wire, No. 9 gage.....	\$2.50
Annealed fence wire	2.65
Spring wire	3.50
Galv'd wire, No. 9.....	3.10
Barbed wire, galv'd	3.35
Barbed wire, painted	3.10

Chicago district mill and delivered Chicago prices are \$1 per ton above the foregoing. Birmingham mill prices \$3 a ton higher; Worcester, Mass., mill \$3 a ton higher on production of that plant; Duluth, Minn., mill \$2 a ton higher; Anderson, Ind., \$1 higher.

Woven Wire Fence

Base to Retailers Per Net Ton

F.o.b. Pittsburgh	\$65.00
F.o.b. Cleveland	65.00
F.o.b. Anderson, Ind.....	66.00
F.o.b. Chicago district mills.....	67.00
F.o.b. Duluth	68.00
F.o.b. Birmingham	68.00

Sheets

Blue Annealed

Base Per Lb.

Nos. 9 and 10, f.o.b. Pittsburgh.....	2.30c. to 2.40c.
Nos. 9 and 10, f.o.b. Ch'go dist. mills,	2.40c. to 2.50c.
Nos. 9 and 10, del'd Philadelphia.....	2.62c. to 2.72c.

Box Annealed, One Pass Cold Rolled

No. 28, f.o.b. Pittsburgh.....	3.00c. to 3.15c.
No. 28, f.o.b. Ch'go dist. mill.....	3.25c. to 3.35c.
No. 28, del'd Philadelphia.....	3.32c. to 3.47c.

Galvanized

No. 28, f.o.b. Pittsburgh.....	4.25c. to 4.40c.
No. 28, f.o.b. Chicago dist. mills.....	4.50c. to 4.60c.
No. 28, del'd Philadelphia.....	4.62c. to 4.72c.

Tin Mill Black Plate

No. 28, f.o.b. Pittsburgh.....	3.15c.
No. 28, f.o.b. Chicago dist. mill.....	3.35c.

Automobile Body Sheets

No. 22, f.o.b. Pittsburgh.....	4.20c.
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Long Ternes

No. 28, 8-lb. coating, f.o.b. mill.....	4.75c. to 4.85c.
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Tin Plate

Per Base Box

Standard cokes, f.o.b. P'gh district mills.....	\$5.50
Standard cokes, f.o.b. Gary and Elwood,	5.60
Ind.	5.60

Terne Plate

(F.o.b. Morgantown or Pittsburgh)

(Per package, 20 x 28 in.)

8-lb. coating, 100	20-lb. coating I.C. \$16.20
lb. base \$11.40	25-lb. coating I.C. 17.90
8-lb. coating I.C. 11.70	30-lb. coating I.C. 19.45
15-lb. coating I.C. 14.85	40-lb. coating I.C. 21.65

Alloy Steel Bars

(F.o.b. Pittsburgh or Chicago)

S. A. E. Series Numbers	Base Per 100 Lb.
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21.00* (1/2% Nickel, 0.10% to 0.20% Carbon)	\$3.20 to \$3.25
23.00 (3 1/2% Nickel)	4.40 to 4.50
2500 (5% Nickel)	5.70 to 5.80
3100 (Nickel Chromium)	3.40 to 3.50
3200 (Nickel Chromium)	5.00 to 5.25
3300 (Nickel Chromium)	7.00 to 7.25
3400 (Nickel Chromium)	6.25 to 6.50
5100 (Chromium Steel)	3.40 to 3.50
5200* (Chromium Steel)	7.00 to 7.50
6100 (Chrom. Vanadium bars).....	4.30
6100 (Chrom. Vanad. spring steel)	3.80
9250 (Silicon Manganese spring steel)	3.20 to 3.25
Carbon Vanadium (0.45% to 0.55% Carbon, 0.15% Vanad.).....	4.10 to 4.20
Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chrom., 0.15 Vanad.)	4.30
Chromium Molybdenum bars (0.80-1.10 Chrom., 0.25-0.40 Molyb.)..	4.25 to 4.35
Chromium Molybdenum bars (0.50-0.70 Chrom., 0.15-0.25 Molyb.)..	3.40 to 3.50
Chromium Molybdenum spring steel (1-1.25 Chrom., 0.30-0.50 Molybdenum)	4.50 to 4.75

Above prices are for hot-rolled steel bars, forging quality. The ordinary differential for cold-drawn bars is 1c. per lb. higher. For billets 4 x 4 to 10 x 10 in. the price for a gross ton is the net price for bars of the same analysis. For billets under 4 x 4 in. down to and including 2 1/2-in. squares, the price is \$5 a gross ton above the 4 x 4 billet price.

*Not S. A. E. specifications, but numbered by manufacturers to conform to S. A. E. system.

Rails

Per Gross Ton

Standard, f.o.b. mill.....	\$43.00
Light (from billets), f.o.b. mill.....	34.00
Light (from rail steel), f.o.b. mill.....	32.00
Light (from billets), f.o.b. Ch'go mill	\$36.00 to 38.00

Track Equipment

(F.o.b. Mill)

Base Per 100 Lb.

Spikes, 3/4 in. and larger.....	\$2.80 to \$3.00
Spikes, 1/2 in. and smaller.....	2.90 to 3.25
Spikes, boat and barge	3.25
Track bolts, all sizes.....	4.00 to 4.50
Tie plates, steel	2.35
Angle bars	2.75

Welded Pipe

Base Discounts, f.o.b. Pittsburgh District and Lorain, Ohio, Mills

Butt Weld

Inches	Steel Black	Galv.	Inches	Iron Black	Galv.
1/4	45	19 1/2	1/4 to 3/8	+11	+39
1/4 to 3/8	51	25 1/2	1/2	22	2
1/2	56	42 1/2	3/4	28	11
3/4	60	48 1/2	1 to 1 1/4	30	12
1 to 3	62	50 1/2			

Lap Weld

2	55	43 1/2	2	23	7
2 1/2 to 6	59	47 1/2	2 1/2	26	11
7 and 8	56	43 1/2	3 to 6	23	13
9 and 10	54	41 1/2	7 to 12	26	11
11 and 12	53	40 1/2			

Butt Weld, extra strong, plain ends

1/4	41	24 1/2	1/4 to 3/8	+19	+54
1/4 to 3/8	47	30 1/2	1/2	21	7
1/2	53	42 1/2	3/4	28	12
3/4	58	47 1/2	1 to 1 1/4	30	14
1 to 1 1/4	60	49 1/2			
2 to 3	61	50 1/2			

Lap Weld, extra strong, plain ends

2	53	42 1/2	2	23	9
2 1/2 to 4	57	46 1/2	2 1/2 to 4	29	15
4 1/2 to 6	56	45 1/2	4 1/2 to 6	28	14
7 to 8	52	39 1/2	7 to 8	21	7
9 and 10	45	32 1/2	9 to 12	16	2
11 and 12	44	31 1/2			

To the large jobbing trade the above discounts on steel pipe are increased on black by one point, with supplementary discount of 5%, and on galvanized by 1 1/2 points, with supplementary discount of 5%. On iron pipe, both black and galvanized, the above discounts are increased to large jobbers by one point with supplementary discounts of 5 and 2 1/2%.

Note.—Chicago district mills have a base two points less than the above discounts. Chicago delivered base is 2 1/2 points less. Freight is figured from Pittsburgh, Lorain, Ohio, and Chicago district mills, the billing being from the point producing the lowest price to destination.

Boiler Tubes

Base Discounts, f.o.b. Pittsburgh

Lap Welded Steel	Charcoal Iron
2 to 2 1/4 in.....	27
2 1/2 to 2 3/4 in.....	37
3 in.....	40
3 1/4 to 3 3/4 in.....	42 1/2
4 to 13 in.....	46
	1 1/2 in.....+18
	1 3/4 to 1 7/8 in.....+8
	2 to 2 1/4 in.....—2
	2 1/2 to 3 in.....—7
	3 1/4 to 4 1/2 in.....—9

Beyond the above discounts, 5 to 7 fives extra are given on lap welded steel tubes and 2 tens to 2 tens and 1 five on charcoal iron tubes.

Standard Commercial Seamless Boiler Tubes

Cold Drawn

1 in.	60	3 in.	45
1 1/4 to 1 1/2 in.....	52	3 1/4 to 3 1/2 in.....	47
1 3/4 in.	36	4 in.	50
2 to 2 1/4 in.....	31	4 1/2, 5 and 6 in.	45
2 1/2 to 2 3/4 in.....	39		

Hot Rolled

2 and 2 1/4 in.....	34	3 1/4 and 3 1/2 in.....	50
2 1/2 and 2 3/4 in.....	42	4 in.	53
3 in.	48	4 1/2, 5 and 6 in.....	45

Less carloads, 4 points less. Add \$8 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tube list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Mechanical Tubing

Per Cent Off List

Carbon, 0.10% to 0.30%, base.....	55
Carbon, 0.30% to 0.40%, base.....	50
Plus differentials for lengths over 18 ft. and for commercially exact lengths. Warehouse discounts on small lots are less than the above.	

require sheets of different sizes from those hitherto used, and the specifying of this material is expected shortly, some having already been ordered. While there is an improvement on the side of demand, the same cannot be said of prices, which the mills report are now below the production costs of some grades. On black sheets, where the most serious price competition has developed, the going prices are 3.10c. and 3.15c., Pittsburgh, and where lower quotations than these have appeared it is usually on orders carrying fairly large extras, or they have emanated from mills which roll black sheets only and which have had the choice of offering concessions to obtain business or of shutting down their mills. On galvanized and blue annealed sheets there is a greater degree of price stability, with the usual range on the former 4.30c. to 4.40c. and on the latter 2.30c. to 2.40c.

Tin Plate.—It is now certain that shipments of tin plate in the first half of 1926 will break all records. With the specifications it now has in hand for shipment over the remainder of this month, the American Sheet & Tin Plate Co. will exceed its shipments in the first half of last year. The leading independent tin plate producer has now had 23 consecutive months of full operation. Shipments of tin plate in the first six months of last year are estimated to have been about 20,000,000 base boxes, and by July 1 of this year this figure will have been outstripped. While in some sections of the country the fruit and vegetable pack will not equal last year's, due to the late spring, the climatic conditions on the Pacific Coast have been ideal and that section will consume more than its usual amount of tin plate for cans. There will be no formal announcement as to tin plate prices for the last half, but all of the mills are going ahead on the basis of the present price of \$5.50 per base box, with the usual concessions to large users, such concessions ranging from 10c. to 25c. per base box, depending on the quantity.

Cold-Finished Steel Bars and Shafting.—Improved conditions in the automobile industry have resulted in larger orders for cold-finished steel in the last week.

Hot-Rolled Flats.—Since the first of the month orders for hot-rolled strip steel have been increasing, and the mills now look for a fairly well sustained demand throughout the summer. The improvement in buying has come partly from the automobile trade, but other sources of business have also been more productive of orders. An increasing amount of hot-rolled strips is being used in the building of concrete roads, and as the national road-building program this year is of large proportions, a fair amount of business from that quarter is expected.

Cold-Rolled Strips.—Orders for cold-rolled strips have been more numerous in the last week and have come principally from automobile manufacturers, bicycle manufacturers and from car companies which recently have received substantial orders for railroad passenger equipment. The larger producers are maintaining quotations at 3.75c. per lb. and in this district and in the East are meeting with little or no difficulty in obtaining that price; in and around Chicago and at some other points in the Middle West concessions of \$2 to \$3 a ton have appeared, due to local competition.

Warehouse Prices, f.o.b. Pittsburgh

	Base per Lb.
Tank plates	3.00c.
Structural shapes	3.00c.
Soft steel bars and small shapes	2.90c.
Reinforced steel bars	2.90c.
Black sheets (No. 28 gage), 25 or more bundles	4.00c.
Galvanized sheets (No. 28 gage), 25 or more bundles	5.05c.
Blue annealed sheets (No. 10 gage), 25 or more sheets	3.55c.
Cold-finished shafting and screw stock—	
Rounds and hexagons	3.60c.
Squares and flats	4.10c.
Bands	3.60c.
Spikes, large	3.30c.
Small	3.80c. to 5.25c.
Boat	3.80c.
Bolts, track	4.90c.
Wire, black soft annealed, base per 100 lb.	\$3.00
Wire, galvanized soft, base per 100 lb.	3.00
Common wire nails, per keg	3.00
Cement coated nails	3.05

Steel and Iron Bars.—With the beginning of the third quarter only two weeks off, the makers of steel bars are showing more determination in quoting 2c. per lb., Pittsburgh. A few third quarter contracts have been made at that figure. Before the recent advance to 2c. many of the larger users and distributors of bars made contracts running until July 1 at 1.90c., and there is every indication that full specifications against these contracts will supply the wants of these buyers through July and in some cases well into August, depending, of course, upon the rate of consumption during the summer period.

Structural Steel.—While fabricated steel work in Pittsburgh and vicinity is of small proportions, the volume of orders for plain material received by the mills in the last week has shown a slight improvement as compared with preceding weeks.

Plates.—Whatever change has developed in the local plate market has been in the direction of a stiffening of prices, and it is now fairly certain that none but a few of the special buyers, such as the railroad car companies, can obtain quotations under 1.90c., Pittsburgh. The continued strength of plate prices in the East and the increase in prices at Chicago have for the time being, at least, dissipated any expectation of a weakening of the market here.

Bolts, Nuts and Rivets.—While the buying of bolts, nuts and rivets so far this month has been rather slow, it is likely that orders will equal those of May. Contracts for the third quarter are now being made, and at the prices which have ruled throughout this and the preceding quarter. Prices are given on page 1743.

Coke and Coal.—Spot furnace coke has been sold within the week at prices ranging from \$2.75 to \$2.90 per net ton at ovens. While the better grades have usually commanded the higher prices, the market is so weak that even some of those grades have gone at \$2.75. A blast furnace is in the market for its third quarter requirements and probably will have to pay \$3, since no contract coke has been sold below that figure. For foundry coke the market remains at \$4 to \$4.25, ovens. The coal market is dull.

Old Material.—Having gone unreasonably low in its down-swing, as it usually does, the scrap market now shows signs of a recovery, although there is no one in the trade optimistic enough to predict that prices will go very far upward. What has happened is that scrap got so low, particularly the steel mill grades, that brokers no longer were willing to take orders that might mean a loss, or at least no profit. Moreover, industrial plants with scrap accumulations have not been anxious to sell at the prices that could be got. A nearby steel plant, which was unsuccessful in filling its current requirements of heavy melting steel at \$15.50, raised its price to \$16 and has bought a little at that figure. A plant at Steubenville, Ohio, paid \$16.50. Thus the range is 50c. a ton higher than a week ago, and some other grades have likewise been affected.

We quote for delivery to consumer's mill in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

	Per Gross Ton
Heavy melting steel	\$16.00 to \$16.50
No. 1 cast, cupola size	16.00 to 16.50
Rails for rolling, Newark and Cambridge, Ohio; Cumberland, Md.; Huntington, W. Va., and Franklin, Pa.	16.00 to 17.00
Compressed sheet steel	15.00 to 15.50
Bundled sheets, sides and ends ..	13.50 to 14.00
Railroad knuckles and couplers ..	18.00 to 18.50
Railroad coil and leaf springs ..	18.00 to 18.50
Low phosphorus blooms and billet ends	20.00 to 20.50
Low phosphorus plates and other material	18.50 to 19.00
Low phosphorus punchings	18.50 to 19.00
Steel car axles	20.50 to 21.00
Cast iron wheels	17.00 to 17.50
Rolled steel wheels	18.00 to 18.50
Machine shop turnings	11.00 to 11.50
Short shoveling turnings	12.00 to 12.50
Sheet bar crops	17.50 to 18.00
Heavy steel axle turnings	15.00 to 15.50
Short mixed borings and turnings ..	12.00 to 12.50
Heavy breakable cast	14.50 to 15.00
Cast iron borings	12.00 to 12.50
No. 1 railroad wrought	11.50 to 12.00
No. 2 railroad wrought	16.00 to 16.50
Railroad or automobile malleable scrap	16.00 to 16.50

Semi-Finished Steel, Raw Materials, Bolts and Rivets

Mill Prices of Semi-Finished Steel

F. o. b. Pittsburgh or Youngstown

Billets and Blooms	
	Per Gross Ton
Rolling, 4-in. and over.....	\$35.00
Rolling, 2-in. and smaller.....	36.00
Forging, ordinary.....	40.00
Forging, guaranteed.....	45.00

Sheet Bars	
	Per Gross Ton
Open-hearth or Bessemer.....	\$36.00

Slabs	
	Per Gross Ton
8 in. x 2 in. and larger.....	\$35.00
6 in. x 2 in. and smaller.....	36.00

Skelp	
	Per Lb.
Grooved.....	1.90c.
Sheared.....	1.90c.
Universal.....	1.90c.

Wire Rods	
	Per Gross Ton
*Common soft, base.....	\$45.00
Screw stock.....	\$5.00 per ton over base
Carbon 0.20% to 0.40%.....	3.00 per ton over base
Carbon 0.41% to 0.55%.....	5.00 per ton over base
Carbon 0.56% to 0.75%.....	7.50 per ton over base
Carbon over 0.75%.....	10.00 per ton over base
Acid.....	15.00 per ton over base

*Chicago mill base is \$46. Cleveland mill base, \$45.

Prices of Raw Materials

Ores	
Lake Superior Ores, Delivered Lower Lake Ports	
	Per Gross Ton

Old range Bessemer, 51.50% iron.....	\$4.55
Old range non-Bessemer, 51.50% iron.....	4.40
Mesabi Bessemer, 51.50% iron.....	4.40
Mesabi non-Bessemer, 51.50% iron.....	4.25
High phosphorus, 51.50% iron.....	4.15
Foreign Ore, c.i.f. Philadelphia or Baltimore	

Per Unit	
Iron ore, low phos., copper free, 55 to 58% iron in dry Spanish or Algerian.....	9.50c. to 10c.
Iron ore, Swedish, average 66% iron.....	9.50c.
Manganese ore, washed, 51% manganese, from the Caucasus.....	42c.
Manganese ore, Brazilian or Indian, nominal.....	42c. to 44c.
Tungsten ore, high grade, per unit, in 60% concentrates.....	\$11.25 to \$12.00
Chrome ore, Indian basic, 48% Cr ₂ O ₃ , crude, c.i.f. Atlantic seaboard.....	\$22.00 to \$23.00
Molybdenum ore, 85% concentrates of MoS ₂ , delivered.....	55c. to 60c.

Coke	
	Per Net Ton
Furnace, f.o.b. Connellsville prompt.....	\$2.75 to \$3.00
Foundry, f.o.b. Connellsville prompt.....	4.00 to 4.50
Foundry, by-product, Chicago ovens.....	9.75
Foundry, by-product, New England, del'd.....	12.00
Foundry, by-product, Newark or Jersey City, delivered.....	9.75 to 10.77
Foundry, Birmingham.....	5.50 to 6.00
Foundry, by-product, St. Louis or Granite City.....	10.00

Coal	
	Per Net Ton
Mine run steam coal, f.o.b. W. Pa. mines.....	\$1.40 to \$1.90
Mine run coking coal, f.o.b. W. Pa. mines.....	1.50 to 1.75
Mine run gas coal, f.o.b. Pa. mines.....	1.90 to 2.10
Steam slack, f.o.b. W. Pa. mines.....	1.25
Gas slack, f.o.b. W. Pa. mines.....	1.25 to 1.35

Ferromanganese	
	Per Gross Ton
Domestic, 80%, furnace or seab'd.....	\$88.00 to \$95.00
Foreign, 80%, Atlantic or Gulf port, duty paid.....	88.00

Spiegleisen	
	Per Gross Ton Furnace
Domestic, 19 to 21%.....	\$32.00 to \$34.00
Domestic, 16 to 19%.....	31.00 to 33.00

Electric Ferrosilicon	
	Per Gross Ton Delivered
50%.....	\$85.00 to \$87.50
75%.....	145.00
	Per Gross Ton Furnace
10%.....	\$42.00
11%.....	42.00

Bessemer Ferrosilicon	
F.o.b. Jackson County, Ohio, Furnace	
	Per Gross Ton
10%.....	\$33.00
11%.....	35.00

Silvery Iron	
F.o.b. Jackson County, Ohio, Furnace	
	Per Gross Ton
6%.....	\$25.50
7%.....	26.50
8%.....	27.50
9%.....	29.00

Other Ferroalloys	
Ferrotungsten, per lb. contained metal, del'd.....	\$1.05 to \$1.20
Ferrochromium, 4% carbon and up, 60 to 70% Cr., per lb. contained Cr. delivered.....	11.50c.
Ferrovandium, per lb. contained vanadium, f.o.b. furnace.....	\$3.25 to \$4.00
Ferrocobalt, 15 to 18%, per net ton, f.o.b. furnace, in carloads.....	\$200.00
Ferrophosphorus, electric or blast furnace material, in carloads, 18%, Rockdale, Tenn., base, per net ton.....	\$91.00
Ferrophosphorus, electric, 24%, f.o.b. Anniston, Ala., per net ton.....	\$122.50

Fluxes and Refractories	
Fluorspar	
	Per Net Ton
Domestic, 85% and over calcium fluoride, not over 5% silica, gravel, f.o.b. Illinois and Kentucky mines.....	\$17.50 to \$18.00
No. 2 lump, Illinois and Kentucky mines.....	\$20.00
Foreign, 85% calcium fluoride, not over 5% silica, c.i.f. Atlantic port, duty paid.....	\$17.25 to \$17.75
Domestic, No. 1 ground bulk, 95 to 98% calcium fluoride, not over 2 1/2% silica, f.o.b. Illinois and Kentucky mines.....	\$32.50

Fire Clay	
	Per 1000 f.o.b. Works
High Duty.....	
Moderate Duty.....	
Pennsylvania.....	\$40.00 to \$43.00
Maryland.....	43.00 to 46.00
New Jersey.....	55.00 to 75.00
Ohio.....	40.00 to 43.00
Kentucky.....	40.00 to 43.00
Illinois.....	40.00 to 43.00
Missouri.....	40.00 to 43.00
Ground fire clay, per ton.....	6.50 to 7.50

Silica Brick	
	Per 1000 f.o.b. Works
Pennsylvania.....	\$40.00
Chicago.....	49.00
Birmingham.....	50.00
Silica clay, per ton.....	\$8.00 to 9.00

Magnesite Brick	
	Per Net Ton
Standard size, f.o.b. Baltimore and Chester, Pa.....	\$65.00
Grain magnesite, f.o.b. Baltimore and Chester, Pa.....	40.00

Chrome Brick	
	Per Net Ton
Standard size.....	\$45.00 to \$48.00

Mill Prices of Bolts, Nuts, Rivets and Set Screws

Bolts and Nuts	
(Less-than-Carload Lots)	
(F.o.b. Pittsburgh, Cleveland, Birmingham and Chicago)	

	Per Cent Off List
Machine bolts, small, rolled threads.....	60 and 10
Machine bolts, all sizes, cut threads.....	50, 10 and 10
Carriage bolts, smaller and shorter, rolled threads.....	50, 10 and 10
Carriage bolts, cut threads, all sizes.....	50 and 10
Eagle carriage bolts.....	65 and 10
Lag bolts.....	60, 10 and 10
Plow bolts, Nos. 3 and 7 heads.....	50 and 10
(Extra of 20% for other style heads)	
Machine bolts, c.p.c. and t. nuts, 3/4 x 4 in., larger and longer sizes.....	45, 10 and 5
Bolt ends with hot-pressed nuts.....	50, 10 and 10
Bolt ends with cold-pressed nuts.....	45, 10 and 5
Hot-pressed nuts, blank and tapped, square, 4.00c. per lb. off list	
Hot-pressed nuts, blank or tapped, hexagons, 4.40c. per lb. off list	
C.p.c. and t. square or hex. nuts, blank or tapped.....	4.10c. per lb. off list
Washers*.....	6.50c. to 6.25c. per lb. off list

*F.o.b. Chicago and Pittsburgh.
The discount on machine, carriage and lag bolts is 5 per cent more than above for car lots. On hot-pressed and cold-pressed nuts the discount is 25c. more per 100 lb. than quoted above for car lots.

Bolts and Nuts	
(Quoted with actual freight allowed up to but not exceeding 50c. per 100 lb.)	

Semi-finished hexagon nuts:	
1/4 in. and smaller, U. S. S.....	80, 10 and 5
1/2 in. and larger, U. S. S.....	75, 10 and 5
Small sizes, S. A. E.....	80, 10, 10 and 5
S. A. E., 1/2 in. and larger.....	75, 10, 10 and 5
Stove bolts in packages.....	80, 10 and 5
Stove bolts in bulk.....	80, 10, 5 and 2 1/2
Tire bolts.....	60 and 5

Semi-Finished Castellated and Slotted Nuts	
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(Actual freight allowed up to but not exceeding 50c. per 100 lb.)

(To jobbers and consumers in large quantities)

	Per 100 Net S.A.E. U.S.S.	Per 100 Net S.A.E. U.S.S.
1/4-in.....	\$0.44 \$0.44	3/4-in..... \$2.35 \$2.40
1/2-in.....	0.515 0.515	1-in..... 3.60 3.60
3/4-in.....	0.62 0.66	1 1/4-in..... 5.65 5.80
1-in.....	0.79 0.90	1 1/2-in..... 8.90 8.90
1 1/4-in.....	1.01 1.05	1 3/4-in..... 12.60 13.10
1 1/2-in.....	1.38 1.42	2-in..... 18.35 18.35
2-in.....	1.70 1.73	2 1/2-in..... 21.00 21.00

Larger sizes.—Prices on application.

Large Rivets	
	Base Per 100 Lb.
F.o.b. Pittsburgh.....	\$2.50 to \$2.60
F.o.b. Cleveland.....	2.70
F.o.b. Chicago.....	2.75

Small Rivets	
	Per Cent Off List
F.o.b. Pittsburgh.....	70 and 10
F.o.b. Cleveland.....	70 and 10
F.o.b. Chicago.....	70, 10 and 5 to 70 and 10

Cap and Set Screws	
(Freight allowed up to but not exceeding 50c. per 100 lb.)	

	Per Cent Off List
Milled cap screws.....	80 and 10
Milled standard set screws, case hardened.....	80 and 5
Milled headless set screws, cut thread.....	80
Upset hex. head cap screws, U. S. S. thread.....	80, 10 and 10
Upset hex. cap screws, S.A.E. thread.....	80, 10 and 10
Upset set screws.....	80, 10 and 5
Milled studs.....	70 and 5

Chicago

Heavy Bar Contracting—Fresh Rail Inquiries Feature Railroad Demand

CHICAGO, June 15.—Two lots of standard-section rails of 10,000 tons each are conspicuous among fresh inquiries for steel, which bulk considerably larger than a week ago. Sales of plates and shapes are not running equal to the average for May. On the other hand, soft steel bars are in excellent demand, and buyers in closing for third quarter requirements have contracted for double the tonnage placed during any week of last month.

Forging plants and automobile parts makers are particularly busy. Building construction is active and inquiry for new projects is brisk, while the railroads are taking good-sized tonnages for bridge work. An order for 1000 tons of tank plates and the placing of steel for 13 80,000-bbl. oil tanks for California have added close to 5000 tons to the books of Chicago mills. More business is emanating from Western railroads. The Great Northern has increased its recent inquiry for 2200 car underframes to 3200, and the Chicago & North Western has placed 500 stock car bodies. A Michigan railroad is in the market for 3000 tons of steel for a car ferry.

On the whole, shipments of plates, shapes and bars are in excess of new buying but are slightly less than specifications.

Pig Iron.—Buyers are showing more interest in Northern foundry and malleable iron for third quarter, and at the same time spot demand is active. The prices established a week ago are holding. Shipments are steady and do not deviate materially from the rate maintained for the past two or three months. A Milwaukee user is in the market for 1000 tons of malleable and a western Michigan melter is inquiring for 2500 tons of foundry and malleable iron. Several inquiries in the Chicago territory range from 1000 to 1500 tons each and call for delivery throughout the third quarter. There have been no recent sales of Southern iron in this territory, and only one 100-ton lot of charcoal iron is reported sold during the week. Charcoal iron is steady at \$26, furnace, or \$29.04, delivered.

Quotations on Northern foundry high phosphorus and malleable iron are f.o.b. local furnace, and do not include an average switching charge of 61c. per ton. Other prices are for iron delivered at consumers' yards.

Northern No. 2 foundry, sil. 1.75 to 2.25	\$21.00 to \$21.50
Northern No. 1 foundry, sil. 2.25 to 2.75	21.50 to 22.00
Malleable, not over 2.25 sil.	21.00 to 21.50
High phosphorus	21.00 to 21.50
Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago	29.04
Southern No. 2 (all rail)	27.01 to 28.01
Southern No. 2 (barge and rail) ..	26.18 to 27.18
Low phos., sil. 1 to 2 per cent, copper free	30.70 to 31.20
Silvery, sil. 8 per cent.	32.29
Ferrosilicon, 14 to 16 per cent. ...	45.79

Ferroalloys.—This market is quiet, and prices are holding. A carlot of spiegeleisen brought \$34, Hazzard, Pa., or \$41.76 delivered. Sizable tonnages are being quoted as low as \$32, Hazzard, for the 19 to 21 per cent grade.

We quote 80 per cent ferromanganese, \$95.56, delivered Chicago; 50 per cent ferrosilicon, \$85, delivered; spiegeleisen, 18 to 22 per cent, \$39.76 to \$41.76, delivered Chicago.

Plates.—Demand for oil storage tanks is still active, and several contracts placed this week have added over 4500 tons of steel to mill books. Railroad car buying is still lagging in this territory, although several car reconstruction programs will call for fair tonnages of steel. The Great Northern is in the market for 2200 freight car underframes, which will require close to 9000 tons of plates and shapes. The Ann Arbor Railroad is taking bids on a car ferry calling for 3000 tons. Within the past few weeks the demand for plates has been steady, and deliveries continue to range from four to six weeks for both the sheared and universal mill

product. Mill quotations are steady at 2.10c. to 2.20c., Chicago.

The mill quotation on plates is 2.10c. to 2.20c. per lb., base, Chicago.

Sheets.—This market continues weak, although actual specifications for the week are the heaviest in several months. New orders are light and for prompt shipment, users apparently being unwilling to commit themselves beyond the next 30 to 45 days. Second quarter contracts have been only partially taken out, and at the present rate of specifying these old contracts will run well into the third quarter. The price situation lacks strength, and the bulk of new tonnage is being taken close to the lower quotations carried below.

Chicago delivered prices from mill are 3.30c. to 3.40c. for No. 28 black; 2.45c. to 2.55c. for No. 10 blue annealed; 4.55c. to 4.65c. for No. 28 galvanized. Delivered prices at other Western points are equal to the freight from Gary plus the mill prices, which are 5c. per 100 lb. lower than the Chicago delivered prices.

Structural Material.—Local construction programs are again in full swing as the result of a wage agreement between contractors and union labor. Sales of plain material at the moment are slightly below the average for May, but specifications show improvement over those of the previous month and have shown a gain since last week. There appears to be no abatement in the activity of architects, and the current rate of structural awards gives promise, according to the trade, of continuing for some time to come. Railroad bridge contracts continue to run heavy, and fresh inquiry totals large in the aggregate. A formal order has been entered with the American Bridge Co. for the Builders' Building, requiring 6900 tons, and a hotel at Joliet, Ill., will require 600 tons. Mill prices are steady at 2.10c., Chicago, on sizable tonnages and at 2.20c. for small lots.

The mill quotation on plain material is 2.10c. to 2.20c. per lb. base, Chicago.

Bars.—Mills are closing third quarter contracts for soft steel bars, and new business so far in June is practically double that of the corresponding period of May. For the week now closing new buying is considerably in excess of shipments, which are gradually growing larger in volume. The more active buying is not wholly a reflection of an increase in demand, but rather a result of the desire of users to cover for third quarter requirements. A large share of bar shipments is being taken by reinforcing bar warehouses. Makers of automobile parts and forging plants are issuing liberal specifications. The high level of industrial activity in this territory is indicated by the fact that during May, contrary to the tendency of the past two years, employment remained practically the same as during the previous month. Deliveries on soft steel bars range from six to eight weeks, and mills are making an effort to schedule individual shipments so that users will receive bars in close conformity to actual requirements. Specifications for iron bars from the railroads are fair, and more liberal orders have come from makers of farm machinery, but mills are still operating on a hand-to-mouth basis. The steady gait of the automobile industry is reflected in the operations of alloy bar mills, which now range from 85 to 90 per cent of capacity. Prices of alloy bars are steady. Deliveries of rail steel bars continue to extend, and makers are well sold through June and July. Barn equipment makers are expanding their operations, and specifications for the week against fence post contracts are heavier than during the early part of June. One rail steel maker is still operating double turn, but expects to shut down for about 10 days late in August for the electrification of the mill. Rail steel bars have advanced to 2c., Chicago.

Mill prices per lb. are: Mild steel bars, 2.10c. to 2.20c., base, Chicago; common bar iron, 2c., base, Chicago; rail steel bars, 2c., base, Chicago.

Reinforcing Bars.—There is little doubt but that wage disputes in the building trades are retarding the placing of reinforcing bars. At the Northwestern University stadium, steel workers who were handling the bars, struck, interrupting construction. However, there appears to be no abatement in the rate at which

fresh inquiry comes out, and bar benders look for a June business equal to that of the same month a year ago. The relations between shops and contractors are satisfactory, with the former keeping pace with the prompt demands of construction schedules. The price situation does not indicate the strength which should go with the volume of business being placed. There are persistent reports of shading, although warehouses are making a strong effort to hold to 2.60c., Chicago, on billet steel bars. Contracts recently placed and new prospects are shown on page 1749.

Rails and Track Supplies.—The Southern Pacific has added 12,000 tons of standard-section rails to its order for 10,000 tons placed last week with the Bethlehem Steel Co. This brings the total purchases by that railroad to 32,000 tons, of which 10,000 tons was placed with the Colorado Fuel & Iron Co. and 22,000 tons with the Bethlehem company. Fastenings were apportioned according to the rail distribution. The Great Northern is in the market for 10,000 tons of rails, and the Southern Railway wants a like tonnage. Fastenings, amounting to 3000 tons, will go with the Great Northern and Southern Railway orders. The Great Northern is also in the market for 2500 tons of steel tie plates, which are now being quoted at \$47 per net ton. Current business in iron tie plates is fair, and makers have booked a number of miscellaneous orders during the week.

Standard Bessemer and open-hearth rails, \$43; light rails, rolled from billets, \$36 to \$38 per gross ton, f.o.b. maker's mill.

Standard railroad spikes, 2.90c. to 3c. per lb. mill; track bolts with square nuts, 3.90c. to 4c. mill; steel tie plates, 2.35c. mill; angle bars, 2.75c. mill.

Cast Iron Pipe.—A large number of small municipalities are making inquiry for and purchasing light tonnages of pipe. In the meantime there is somewhat less activity on the part of private buyers. The price situation is steady at \$41 to \$41.50, base Birmingham, for 6-in. and larger pipe, or \$49.20 to \$49.70, delivered. Halfway, Mich., will close June 16 on 2000 tons of 6 and 8-in. Class B pipe. Sullivan, Ill., will close June 15 on 805 tons of 6-in., 265 tons of 8-in. and 17 tons of 10-in., all Class B 16-ft. length pipe, and Milwaukee will take figures up to June 21 on 1135 tons of 30-in. and 418 tons of 20-in. Class C. Malachi Murphey was low bidder on a contract for 200 tons of 6, 8 and 12-in. Class B pipe for Oak Park, Ill.

We quote per net ton, delivered Chicago, as follows: Water pipe, 4-in., \$53.20 to \$53.70; 6-in. and over, \$49.20 to \$49.70; Class A and gas pipe, \$4 extra.

Wire Products.—Prices are firm, and the volume of business continues at the rate established during the early part of June. Demand from the jobbing trade is good, considering the season, averaging better than in May. Stocks in the hands of the trade are low, and mills are being pressed for prompt delivery. The seasonal demand for nails is fair. Specifications from the manufacturing trade are slightly heavier. Mill operations range from 55 to 60 per cent.

Bolts, Nuts, and Rivets.—Third quarter contracting

is well under way at current quotations. Specifications against second quarter contracts are slightly larger and are running heavier than in May. Makers' operations are between 65 and 70 per cent of capacity, but backlogs have been reduced steadily, and unless orders become heavier at an early date production will have to be curtailed. Shipments to the automobile trade and the railroads are holding up well, and agricultural machinery makers are showing activity several weeks ahead of the anticipations of the trade.

Fluorspar.—This commodity is steady at \$18, mines, and one user east of Chicago has taken 2000 tons for delivery over the remainder of the year. Although no concerted buying movement has started as yet, miscellaneous orders for the week will total another 2000 tons.

Hot-Rolled Strip.—Continued prosperity in the automotive industry is placing heavy demands upon makers of hot-rolled strip, and local mills are finding some difficulty in meeting users' demands. Mill prices are 2.60c., Chicago, for 6-in. and narrower and 2.50c. on all wider material.

Coke.—Shipments of by-product foundry coke are heavy, and stocks are not being accumulated. Prices are \$9.75, ovens, and \$10.25 delivered in the Chicago switching district.

Old Material.—Greater confidence is shown by the trade this week. There is a considerable amount of trading among dealers, but consumers on the whole are not active in the market. One large user of heavy melting steel made inquiry for 5000 tons of that grade, but as yet has not closed. A user of brake shoes will take 500 tons and an inquiry is out for several hundred tons of angle bars. Low phosphorus grades are in better demand, indicating more activity on the part of steel foundries. Railroad lists continue to bring prices well above the market. Heavy melting steel on the recent Santa Fe list brought \$13.76 per gross ton, delivered, and all other steel grades were proportionately high. No. 2 wrought was taken at \$12.25 per net ton, delivered, steel angle bars at \$15.25 per gross ton, delivered, and rolled steel wheels at \$17 per gross ton, delivered. Iron axles brought \$24.10 per net ton, delivered, on a recent Wabash list. Prices quoted are, on the whole, nominal and the greater confidence of dealers must undergo the test of time. The Rock Island has advertised 3500 tons.

We quote delivered in consumers' yards, Chicago and vicinity, all freight and transfer charges paid for all items except relaying rails, including angle bars to match, which are quoted f.o.b. dealers' yards:

Per Gross Ton

Heavy melting steel.....	\$12.25 to \$12.75
Frogs, switches and guards, cut apart, and miscellaneous rails.....	13.50 to 14.00
Shoveling steel.....	12.25 to 12.75
Hydraulic compressed sheets.....	10.00 to 10.50
Drop forge flashings.....	9.00 to 9.50
Forged, cast and rolled steel car wheels.....	16.00 to 16.50
Railroad tires, charging box size.....	16.25 to 16.75
Railroad leaf springs, cut apart.....	16.00 to 16.50
Steel couplers and knuckles.....	15.00 to 15.50
Coil springs.....	16.50 to 17.00
Low phos. punchings.....	15.00 to 15.50
Axle turnings, foundry grade.....	13.00 to 13.50
Axle turnings, blast furn. grade.....	11.00 to 11.50
Relaying rails, 56 to 60 lb.....	25.00 to 26.00
Relaying rails, 65 lb. and heavier.....	26.00 to 31.00
Rerolling rails.....	15.00 to 15.50
Steel rails, less than 3 ft.....	16.00 to 16.50
Iron rails.....	13.50 to 14.00
Cast iron borings.....	9.75 to 10.25
Short shoveling turnings.....	9.75 to 10.25
Machine shop turnings.....	6.50 to 7.00
Railroad malleable.....	16.25 to 16.75
Agricultural malleable.....	15.00 to 15.50
Angle bars, steel.....	14.50 to 15.00
Cast iron car wheels.....	15.00 to 15.50

Per Net Ton

No. 1 machinery cast.....	16.00 to 16.50
No. 1 railroad cast.....	15.25 to 15.75
No. 1 agricultural cast.....	15.00 to 15.50
Stove plate.....	13.25 to 13.75
Grate bars.....	13.00 to 13.50
Brake shoes.....	12.00 to 12.50
Iron angle and splice bars.....	13.00 to 13.50
Iron arch bars and transoms.....	18.50 to 19.00
Iron car axles.....	23.50 to 24.00
Steel car axles.....	17.00 to 17.50
No. 1 railroad wrought.....	11.50 to 12.00
No. 2 railroad wrought.....	10.75 to 11.25
No. 1 busheling.....	9.25 to 9.75
No. 2 busheling.....	5.50 to 6.00
Locomotive tires, smooth.....	15.50 to 16.00
Pipes and flues.....	8.00 to 8.50

Warehouse Prices, f.o.b. Chicago

	Base per Lb.
Plates and structural shapes.....	3.10c.
Mild steel bars.....	3.00c.
Reinforcing bars, billet steel.....	2.60c.
Cold-finished steel bars and shafting—	
Rounds and hexagons.....	3.60c.
Flats and squares.....	4.10c.
Hoops.....	4.15c.
Bands.....	3.65c.
No. 28 black sheets.....	4.10c.
No. 10 blue annealed sheets.....	3.50c.
No. 28 galvanized sheets.....	5.25c.
Standard railroad spikes.....	3.55c.
Track bolts.....	4.55c.
Structural rivets.....	3.50c.
Boiler rivets.....	3.70c.

Per Cent Off List

Machine bolts.....	50 and 5
Carriage bolts.....	47½
Coach or lag screws.....	55 and 5
Hot-pressed nuts, square, tapped or blank, 3.25c. off per lb.	
Hot-pressed nuts, hexagons, tapped or blank, 3.75c. off per lb.	
No. 8 black annealed wire, per 100 lb.....	\$3.30
Common wire nails, base, per keg.....	3.05
Cement coated nails, base, per keg.....	3.05

Cleveland

Adopt Quantity Differential on Shapes and Bars—Heavy Iron Sales

CLEVELAND, June 15.—Two leading producers have advanced structural steel \$2 a ton to 2c., Pittsburgh, and have adopted a quantity differential of \$2 a ton, making a price of 2.10c. on lots of less than 100 tons both of steel bars and structural material. Some of the other mills have also advanced their steel bar prices to 2.10c. for less than 100 tons. While plates are unchanged at 1.90c., the leading interest is now asking 2c. for carlots and less. Higher prices for small lots have not yet been tested, but a similar attempt that was made several months ago met with failure. While current orders for steel bars are being taken at 2c., this price has not met with much of a test, as a considerable portion of the trade is getting shipments on orders at 1.90c.

Some of the mills will take contracts for steel bars, plates and structural material only for July and August. However, there is not much inquiry for contracts, as neither buyers nor sellers are showing much desire to make extended commitments.

The demand, both in specifications and current orders, shows a little improvement. Some business in hot-rolled strip steel and in screw stock is being taken for the third quarter at the regular current prices. Inquiries have come out for two water pipe lines, one in Texas and the other in Oklahoma, each requiring 5000 tons. The 50 Illinois Central locomotives taken by the Lima Locomotive Works will require 2200 tons of plates, which have not yet been placed. The Penstock Construction Co., Sharon, Pa., was low bidder for the New York pipe line requiring 4000 tons of plates.

Pig Iron.—The buying movement gained considerable momentum the past week, and sales of foundry and malleable iron by Cleveland interests aggregated over 100,000 tons. Buying was well scattered over Ohio and Indiana, with some business coming from western New York and Pennsylvania. In view of the keen competition some of the Lake furnaces are reaching out further into surrounding territories for business. Efforts to bolster up the Valley market to \$18.50, furnace, have failed, and \$18 is now generally quoted by Valley furnaces. In Cleveland the market has declined 25c. a ton more to \$19, furnace, for Cleveland delivery. For outside shipment \$18, furnace, is the usual Cleveland quotation, but that has been shaded on sales to far distant points. In Michigan a further concession of 50c. a ton to \$19.50, furnace, has been made. The market in that State now is represented by a spread of \$19.50 to \$20. In western Ohio and Indiana, prices are governed by competitive conditions, varying according to the locations of buyers. Buying is well distributed among the various consuming industries outside of the automotive industry, which has not become active in the market, evidently because of uncertainty about its third quarter business in cars. However, the leading producer has specified against a long term contract for the full amount of its iron for the third quarter. Considerable iron sold during the week was for the entire last half, although some producers will not go beyond the third quarter. The American Brake Shoe & Foundry Co. is understood to have placed 7000 tons for its Cleveland and Pittsburgh plants with Cleveland furnaces. A Cleveland manufacturer of

house heating furnaces placed 3500 tons with local furnaces, and a Cleveland automobile foundry placed 1500 tons. A Berea foundry purchased 1000 tons, and several other sales were made in northern Ohio in lots up to 1000 tons or more. A Tennessee furnace has advanced Southern foundry iron 50c. a ton to \$21, base Birmingham. The M. A. Hanna Co. will blow out its Cherry Valley furnace, Leetonia, Ohio, shortly, and it is probable that present low prices will cause some other furnaces to shut down.

Quotations below, except on basic and low phosphorus iron, are delivered Cleveland, and for local iron include a 50c. switching charge. Ohio silvery and Southern iron prices are based on a \$3.02 freight rate from Jackson and \$6.01 from Birmingham:

Basic, Valley furnace.....	\$18.00
N'th'n No. 2 fdy., sil. 1.75 to 2.25.....	19.50
Southern fdy., sil. 1.75 to 2.25.....	\$26.51 to 27.01
Malleable	19.50
Ohio silvery, 8 per cent.....	30.52
Standard low phos., Valley furnace	27.50

Semi-Finished Steel.—Some business in sheet bars has been placed for the third quarter at a price which figured slightly less than \$35, Youngstown. However, Youngstown mills are still holding to \$36. No contracts are reported at that price, and few sheet mills are as yet showing any interest in their third quarter requirements.

Sheets.—Present low prices on sheets have stimulated buying, both in current orders and in third quarter contracts. Generally prices are no lower than they have been, but a firmer tendency is lacking and some of the mills are taking business for the third quarter at the present ruling prices. Black sheets commonly range from 3c. to 3.15c., base Pittsburgh, although a price of 2.90c. occasionally comes out. Blue annealed sheets are generally quoted at 2.30c., with some business going at 2.25c. Galvanized sheets have sold at as low as 4.20c., although 4.30c. is the more general price. Some of the mills are taking third quarter contracts at 3.15c. for black, 2.30c. for blue annealed, 4.30c. for galvanized and 4.20c. for automobile body sheets.

Cold-Rolled Strip Steel.—In spite of efforts of some producers to hold to 3.75c., Cleveland and Pittsburgh, there is considerable price irregularity and the price named above generally applies to small lots. On good orders 3.60c. appears better to represent the market, although a price as low as 3.50c. is reported on large lots.

Reinforcing Bars.—There is fair inquiry for small lots. New billet steel bars are commonly quoted at 2c., Pittsburgh. Rail steel bars are unchanged at 1.80c., mill.

Warehouse Business.—Sheets are moving fairly well, but the demand for other products is somewhat below normal. Regular prices are being maintained.

Bolts, Nuts and Rivets.—Bolt and nut makers have commenced to take contracts for the third quarter at the present discounts and do not expect to meet price resistance, as the present discounts have been in force for 18 months. Specifications show a slight gain. The leading local rivet manufacturer today advised its trade that it had opened its books for the third quarter at \$2.60 per 100 lb. for large rivets and at a 70 and 10 per cent discount for small rivets. Bolt and nut makers have also named this discount for small rivets for the third quarter.

Coke.—The demand for foundry coke is light, and the production of by-product foundry coke appears in excess of the demand. Connellsville foundry coke is unchanged at \$4 to \$5.50, ovens. By-product domestic coke is moving fairly well at \$4, ovens, for nut sizes, and \$4.50 for egg sizes.

Old Material.—The market has a slightly firmer tone, but prices are no higher, with the exception of a 25c. advance on machine shop turnings and No. 1 busheling. A Cleveland mill bought some turnings the past week at \$9.75. The purchase caused a stiffening in the price, and dealers paid as high as \$10 for this grade. A northern Ohio steel plant has discontinued the use of turnings, this being the second consumer in this territory to abandon their use the past month.

Warehouse Prices, f.o.b. Cleveland

	Base per Lb.
Plates and structural shapes.....	3.00c.
Mild steel bars.....	3.00c.
Cold-finished rounds and hexagons.....	3.90c.
Cold-finished flats and squares.....	4.40c.
Hoops and bands.....	3.65c.
No. 28 black sheets.....	3.85c.
No. 10 blue annealed sheets.....	3.15c.
No. 28 galvanized sheets.....	5.00c.
No. 9 annealed wire, per 100 lb.....	\$3.00
No. 9 galvanized wire, per 100 lb.....	3.45
Common wire nails, base, per keg.....	8.00

Scrap produced in the Detroit automobile plants is not all being absorbed by the blast furnaces and open-hearth plants, to which the bulk of it is usually shipped, and some outlet for the Detroit scrap is now being found in Buffalo and in Canada. There is some activity in borings and turnings for which dealers are paying \$11.50.

We quote per gross ton delivered consumers' yards in Cleveland:

Heavy melting steel.....	\$13.50 to \$14.00
Rails for rolling.....	16.25 to 16.50
Rails under 3 ft.....	17.00 to 17.50
Low phosphorus billet, bloom and slab crops.....	18.00 to 18.50
Low phosphorus sheet bar crops..	18.00 to 18.75
Low phosphorus plate scrap.....	18.00
Light plate scrap.....	17.50
Low phosphorus forging crops....	16.75 to 17.25
Cast iron borings.....	11.00 to 11.50
Machine shop turnings.....	9.50 to 10.00
Mixed borings and short turnings	11.00 to 11.50
Compressed sheet steel.....	13.00 to 13.25
No. 1 railroad wrought.....	11.50 to 12.00
No. 2 railroad wrought.....	13.50 to 14.00
Railroad malleable.....	18.00 to 18.50
Light bundled sheet stampings...	11.00 to 11.50
Steel axle turnings.....	12.50 to 13.00
No. 1 cast.....	16.50 to 17.00
No. 1 busheling.....	11.25 to 11.75
No. 2 busheling.....	10.50 to 11.00
Drop forge flashings, 15 in. and under.....	11.50 to 12.00
Railroad grate bars.....	12.50 to 13.00
Stove plate.....	11.50 to 12.00
Pipes and flues.....	10.00 to 10.50

New York

Steel Bookings Gain on Shipments—Keener Interest in Pig Iron

NEW YORK, June 15.—Sales of pig iron in this district during the past week totaled close to 15,000 tons and pending inquiries call for an equal tonnage. A number of factors have caused melters to take more interest in the market. It is recognized that the heavy buying movement now under way in Western districts may spread to this part of the country. Moreover, British iron is no longer a market factor and less German iron is being offered because of the possibility of the application of a countervailing duty on that product. The strength shown recently by steel prices and the upturn of the stock market have also had the effect of putting melters into a buying mood. Competition is still keen, particularly in New England where both new and established brands of iron are being pressed for sale. In the New York district, however, prices from domestic furnaces are substantially unchanged, barring occasional shading. The Thatcher Furnace Co., New York, has placed 2000 tons of foundry iron with eastern Pennsylvania producers. The American Locomotive Co., New York, has closed for 300 tons each of foundry and charcoal iron for its Dunkirk plant and 300 tons of Virginia foundry iron for its Richmond, Va., works. For the latter plant it is still inquiring for 100 tons of charcoal iron. The General Electric Co., Schenectady, N. Y., has placed 400 tons for its Bayway, N. J., plant and has closed against its inquiry for Elmira, N. Y. It has not yet bought for its Lynn and Everett, Mass., plants and has put out additional inquiries of 175 tons each of low phosphorus iron for those points. The Gould Coupler Co., New York, has closed against its inquiry for 500 tons to 1000 tons of basic for Depew, N. Y., and the American Tube & Stamping Co., Bridgeport, Conn., has bought 1500 tons of the same grade which, according to report, will be shipped by barge. The Sullivan Machinery Co. has placed 200 tons of foundry and 100 tons of malleable iron for its Claremont, N. H., plant, and the Worthington Pump & Machinery Corporation has purchased 600 tons of eastern Pennsylvania iron for its Harrison, N. J., works. A number of attractive inquiries are pending. The Crane Co., Bridgeport, Conn., is in the market for 1000 tons of foundry and 500 tons of malleable iron. The General Fire Extinguisher Co., Providence, R. I., is inquiring for 1500 tons of foundry, and the Richardson & Boy-

nton Co., New York, is in the market for 3500 tons of foundry. Another inquiry for 1000 tons of foundry iron is pending in this vicinity.

We quote per gross ton delivered in the New York district as follows, having added to furnace prices \$2.52 freight from eastern Pennsylvania, \$4.91 from Buffalo and \$5.54 from Virginia:

East Pa. No. 2 fdy., sil. 1.75 to 2.25.....	\$24.02
East Pa. No. 2X fdy., sil. 2.25 to 2.75.....	24.52
East Pa. No. 1X fdy., sil. 2.75 to 3.25.....	25.02
Buffalo fdy., sil. 1.75 to 2.25 (all-rail).....	24.91
Buffalo fdy., sil. 1.75 to 2.25 (by barge canal, del'd alongside in lighterage limits, N. Y. and Brooklyn).....	22.75
No. 2 Virginia fdy., sil. 1.75 to 2.25.....	\$27.54 to 29.54

Ferroalloys.—The absence of new business in ferro-manganese is still pronounced, but specifications on contracts are heavy. The alloy can be obtained at a minimum of \$88, seaboard. The British continue to quote \$110, seaboard, but are obtaining no business. A large American producer is maintaining his price at

Warehouse Prices, f.o.b. New York

Base per Lb.		
Plates and structural shapes.....	3.34c.	
Soft steel bars and small shapes.....	3.24c.	
Iron bars.....	3.24c.	
Iron bars, Swedish charcoal.....	7.00c. to 7.25c.	
Cold-finished steel shafting and screw stock—		
Rounds and hexagons.....	4.00c.	
Flats and squares.....	4.50c.	
Cold-rolled strip, soft and quarter hard..	6.25c.	
Hoops.....	4.49c.	
Bands.....	3.99c.	
Blue annealed sheets (No. 10 gage).....	3.89c.	
Long terme sheets (No. 28 gage).....	6.35c.	
Standard tool steel.....	12.00c.	
Wire, black annealed.....	4.50c.	
Wire, galvanized annealed.....	5.15c.	
Tire steel, 1½ x ½ in. and larger.....	3.30c.	
Smooth finish, 1 to 2½ x ¼ in. and larger.....	3.65c.	
Open-hearth spring steel, bases.....	4.50c. to 7.00c.	
Per Cent Off List		
Machine bolts, cut thread.....	40 and 10	
Carriage bolts, cut thread.....	30 and 10	
Coach screws.....	40 and 10	
Boiler Tubes—	Per 100 Ft.	
Lap welded steel, 2-in.....	\$17.33	
Seamless steel, 2-in.....	20.24	
Charcoal iron, 2-in.....	25.00	
Charcoal iron, 4-in.....	67.00	
Discounts on Welded Pipe		
Standard Steel—	Black	Galv.
½-in. butt.....	46	29
¾-in. butt.....	51	37
1-in. butt.....	53	39
2½-6-in. lap.....	48	35
7 and 8-in. lap.....	44	17
11 and 12-in. lap.....	37	12
Wrought Iron—		
½-in. butt.....	4	+19
¾-in. butt.....	11	+9
1-1½-in. butt.....	14	+6
2-in. lap.....	5	+14
3-6-in. lap.....	11	+6
7-12-in. lap.....	3	+16
Tin Plate (14 x 20 in.)		
	Prime	Seconds
Coke, 100-lb. base box.....	\$6.45	\$6.20
Charcoal, per box—	A	AAA
IC.....	\$9.70	\$12.10
IX.....	12.00	14.25
IXX.....	13.90	16.00
Terne Plate (14 x 20 in.)		
IC—20-lb. coating.....	\$10.00 to \$11.00	
IC—30-lb. coating.....	12.00 to 13.00	
IC—40-lb. coating.....	13.75 to 14.25	
Sheets, Box Annealed—Black, C. R. One Pass†		
Per Lb.		
Nos. 18 to 20.....	4.15c. to 4.30c.	
Nos. 22 and 24.....	4.20c. to 4.35c.	
No. 26.....	4.25c. to 4.40c.	
No. 28*.....	4.35c. to 4.50c.	
No. 30.....	4.55c. to 4.70c.	
Sheets, Galvanized†		
Per Lb.		
No. 14.....	4.45c. to 4.60c.	
No. 16.....	4.60c. to 4.75c.	
Nos. 18 and 20.....	4.75c. to 4.90c.	
Nos. 22 and 24.....	4.90c. to 5.05c.	
No. 26.....	5.05c. to 5.20c.	
No. 28*.....	5.35c. to 5.50c.	
No. 30.....	5.85c. to 6.00c.	

*No. 28 and lighter, 36 in. wide, 20c. higher per 100 lb.
†Lower price is for lots of 50 bundles or more.

\$95, furnace. A few small and carload lots of spiegel-eisen are noted, both as sales and inquiries at unchanged prices.

Finished Steel.—Shipments are not now so greatly in excess of bookings as they were. With some mills incoming business, comprising specifications and new orders, is up to the level of May, and with others it is in bigger volume. Production on the whole has tapered somewhat. Thus the spread between output and specific demand is narrowing. The marking up of structural shapes by Bethlehem Steel Co. and others by \$2 a ton, following a like increase in the asking price for steel bars three weeks ago, has not brought out any marked increase of new buying. It has served, however, to swell orders against existing contracts to the extent that steel for July needs will be covered generally at prices ruling before the advances took effect. Any large amount of buying as a test of the 2c., Pittsburgh, for bars and shapes, is therefore postponed a few weeks. As it is, fresh purchases, some mills say, will be accepted at the new basis for only July and August. The market for wire is without color and prices for sheets are uncertain. Black sheets are apparently obtainable without difficulty on a 3c. Pittsburgh base, and the market for sizable lots of blue annealed and galvanized sheets appears to be 2.30c., and 4.30c., respectively. The coal strike in England has diverted no noticeable amount of business to the United States. Inquiries are numerous but are for merchant business. One interesting sale to Great Britain covered 1000 base boxes to a bottle cap maker.

We quote for mill shipments, New York delivery, as follows: Soft steel bars, 2.34c. per lb.; plates, 2.24c.; structural shapes, 2.24c. to 2.34c.; bar iron, 2.24c.

Coke.—While furnace grade continues firm at about \$3.25 per ton, Connellsville, foundry prices are still slightly weak. A large Connellsville producer is still quoting foundry at \$5.50 per ton and the rest of the market is quotable at about \$4.25 per ton. Standard foundry ranges from \$7.91 to \$9.41 per net ton, delivered Newark and Jersey City, N. J., \$8.03 to \$9.53, delivered northern New Jersey and \$8.79 to \$10.29, delivered New York or Brooklyn, N. Y. By-product continues at \$9.75 to \$10.77, delivered Newark or Jersey City, N. J.

Old Material.—Prices of all grades continue for the most part unchanged. No. 1 heavy melting steel is being purchased at \$14.50 to \$15 per ton, delivered eastern Pennsylvania consumers, but these prices apparently represent the bottom of the present market, as occasional purchases of desirable lots are reported made by brokers at slightly higher prices. An eastern Pennsylvania mill, which has been negotiating for heavy melting steel for several weeks, has finally closed on about 10,000 tons at \$15.50 per ton, delivered. Although the market shows no tendency to advance and several grades of scrap still exhibit an undertone of weakness, brokers are evidently purchasing their requirements at present prices with some difficulty.

Buying prices per gross ton, New York, follow:

Heavy melting steel (yard).....	\$9.75 to \$10.25
Heavy melting steel (railroad or equivalent)	11.25 to 11.75
Rails for rolling.....	11.50 to 12.00
Relaying rails, nominal.....	23.00 to 24.00
Steel car axles.....	18.50 to 19.00
Iron car axles.....	21.50 to 22.00
No. 1 railroad wrought.....	13.00 to 13.50
Forge fire	9.50 to 10.00
No. 1 yard wrought, long.....	11.50 to 12.00
Cast borings (steel mill).....	9.25 to 9.75
Cast borings (chemical).....	11.75 to 12.75
Machine shop turnings.....	9.00 to 9.50
Mixed borings and turnings.....	9.25 to 9.75
Iron and steel pipe (1 in. diam., not under 2 ft. long).....	11.25 to 11.50
Stove plate (steel mill).....	9.25 to 9.75
Stove plate (foundry).....	10.25 to 10.50
Locomotive grate bars.....	10.25 to 10.75
Malleable cast (railroad).....	16.00 to 16.50
Cast iron car wheels.....	12.25 to 12.75
No. 1 heavy breakable cast.....	12.00 to 13.00

Prices which dealers in New York and Brooklyn are quoting to local foundries per gross ton follow:

No. 1 machinery cast.....	\$16.50 to \$17.00
No. 1 heavy cast (columns, building material, etc.), cupola size	15.00 to 15.50
No. 2 cast (radiators, cast boilers, etc.)	14.00 to 14.50

Warehouse Business.—Demand for structural material is good with tonnages bought from stock ranging up to 5 tons, with an occasional purchase of as much as 20 tons where prompt shipment is a prime requisite. Prices on all products are reported firm with a moderate volume of business and fair inquiry. Black and galvanized sheet prices show no change, the reduction of 15c. per 100 lb. to 4.35c. on black and 5.35c. on galvanized still being applicable only to orders of about 50 bundles or more.

Cast Iron Pipe.—No municipal inquiries are reported in this district but the City of New York is expected to enter the market for a sizable tonnage within the next two weeks. A fair tonnage of pipe is pending in various small lots under inquiry by private companies. In most instances makers are sold up to September on the small sizes, under 10-in. Prices are firm.

We quote pressure pipe per net ton, f.o.b. New York in carload lots, as follows: 6-in. and larger, \$50.60 to \$52.60; 4-in. and 5-in., \$55.60 to \$57.60; 3-in., \$65.60 to \$67.60; with \$5 additional for Class A and gas pipe.

Philadelphia

Pennsylvania Inquires for 25,000 Tons of Steel—Large Scrap Orders

PHILADELPHIA, June 15.—The outstanding steel inquiry of the past week is from the Pennsylvania Railroad, a list covering a wide range of products and totaling 25,000 to 30,000 tons for third quarter requirements. Bids will be publicly opened June 28, the first large public purchase to be made by this railroad since the election to the board of directors of a director of the Steel Corporation. The list, which specifies maximum tonnages that may be purchased, actual amounts to be determined by negotiation after award, calls for 15,000 tons of plates, 6000 tons of bars, 1000 tons of shapes, 500 tons of sheets, 100 tons of wire, 3000 axles, 1,500,000 lb. of spikes, 400,000 track bolts, 145,200 pairs of splice bars, 625,000 tie plates and piston head requirements.

The gain in volume of business over May that has been in evidence since the first of the month is evidently being maintained, although buying is still confined to small lots of a carload or more as a rule. Steel bars are apparently fairly firm at 2c. per lb., Pittsburgh, but although a 2c. per lb. minimum price on plates and shapes is anticipated for the near future, consumers are evidently well covered on the basis of 1.90c. and there is still a willingness to quote on this basis.

The pig iron market is moderately active in sales of small lots of the foundry grade, with continued absorption by sellers of the silicon differentials and equalization of freight rates when desirable business is at stake.

Scrap still has an undertone of weakness, despite purchases of fairly sizable tonnages of heavy melting steel in the past fortnight by eastern Pennsylvania consumers.

Pig Iron.—Sales of foundry for third quarter delivery continue in fair volume, although confined for the most part to small tonnages. Pipe shops have been among recent active purchasers of foundry iron. A large part of the 1200 tons of German iron which arrived at Philadelphia last week is understood to be for a consumer at Burlington, N. J. The market on foundry iron continues fairly firm at \$21.50 base, with desirable business often resulting in absorption by the furnace of the usual silicon differentials and equalization of freight rates. A small tonnage of basic closed recently justifies a delivered quotation of \$21.25 to \$21.50 per ton. Application of demurrage on carloads of imported pig iron, it is pointed out by importers, will not only curtail speculation but may be a deterrent to legitimate sales of small lots for future delivery. Tonnages are often composed of a number of orders of a few hundred tons for delivery to various

consumers on different dates, and it is claimed that it might prove rather difficult to arrange delivery to the buyers' satisfaction if an entire shipment was forwarded as soon as landed.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia and include freight rates varying from 76c. to \$1.63 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	\$22.26 to \$22.76
East. Pa. No. 2X, 2.25 to 2.75 sil.	22.76 to 23.26
East. Pa. No. 1X.	23.26 to 23.76
Virginia No. 2 plain, 1.75 to 2.25 sil.	27.67 to 28.67
Virginia No. 2X, 2.25 to 2.75 sil.	28.17 to 29.17
Basic delivered eastern Pa.	21.25 to 21.50
Gray forge	22.00 to 22.50
Malleable	22.50 to 23.00
Standard low phos. (f.o.b. furnace)	22.00 to 23.00
Copper bearing low phos. (f.o.b. furnace)	23.50 to 24.00

Billets.—Contracting for third quarter has not yet developed, but with prices at the present level, current quotations are expected to govern such business. Re-rolling quality is quoted at \$35 per ton, Pittsburgh, and forging billets at \$40 per ton, Pittsburgh.

Plates.—While 2c. per lb., Pittsburgh, is spoken of as the desirable minimum for plate business, which may be reached before long, 1.90c. per lb. is still the market on desirable lots. In view of the fact that the Pennsylvania Railroad bids on 15,000 tons of plates will be publicly opened and the further fact that this is the maximum to be purchased and the actual order may be much smaller, not much better than 1.90c. per lb. seems to be anticipated by sellers.

Structural Material.—Efforts to advance the market to 2c. per lb., Pittsburgh, are not yet entirely successful. Consumers have evidently covered present requirements at 1.90c. per lb. and mills are still accepting business under the 2c. per lb. level. The Pennsylvania Railroad list includes 1000 tons of shapes.

Old Material.—In a rather weak market with most grades inactive, purchasing of No. 1 heavy melting steel has been an outstanding feature. Recent buying by a large eastern Pennsylvania steel interest has totaled close to 30,000 tons at \$14.50 per ton delivered. A Pottsville consumer has closed on about 9000 tons at \$15.50 per ton and less and a Claymont, Del., consumer has purchased about 10,000 tons at \$15.50. A Lebanon buyer of specification pipe has been taking small lots at \$14.50 per ton, delivered.

We quote for delivery, consuming points in this district, as follows:

No. 1 heavy melting steel	\$14.50 to \$15.50
Scrap rails	15.00 to 15.50
Steel rails for rolling	15.50 to 16.00
No. 1 low phos., heavy, 0.04 per cent and under	19.00 to 20.00
Couplers and knuckles	17.50 to 18.00
Rolled steel wheels	17.50 to 18.00
Cast iron car wheels	17.00 to 17.50
No. 1 railroad wrought	16.50 to 17.00
No. 1 yard wrought	16.00 to 16.50
No. 1 forge fire	13.50
Bundled sheets (for steel works)	13.00 to 13.50
Mixed borings and turnings (for blast furnace)	12.50 to 13.00
Machine shop turnings (for steel works)	13.00 to 13.50
Heavy axle turnings (or equivalent)	14.00 to 14.50
Cast borings (for steel works and rolling mill)	13.00 to 13.50
Cast borings (for chemical plant)	15.00 to 15.50
No. 1 cast	17.00 to 18.00
Heavy breakable cast (for steel works)	16.00 to 16.50
Railroad grate bars	13.50 to 14.00
Stove plate (for steel works)	13.50 to 14.00
Wrought iron and soft steel pipes and tubes (new specifications)	14.50 to 15.00
Shafting	20.00 to 21.00
Steel axles	21.50 to 22.00

Bars.—Included in the Pennsylvania Railroad inquiry is about 6000 tons of bars. The market is apparently quite firm at 2c. per lb., Pittsburgh, with only occasional deviations from this level. Reinforcing bar inquiry is reported good. The new West Philadelphia station of the Pennsylvania Railroad includes about 7900 tons of reinforcing bars and about 1000 tons is required for a viaduct for the same railroad. In both instances, it is understood that the specifications call for twisted square bars.

Ferroalloys.—No transactions are reported even for

small lots and the market is unchanged at \$88 to \$95 per ton, furnace, for the domestic product with British sellers quoting \$110, seaboard.

Imports.—In the week ended June 12, a total of 1905 tons of pig iron arrived at the port of Philadelphia, of which 1235 tons came from Germany and 670 tons from the Netherlands. Steel imports included 142 tons of bars from Sweden and 50 tons from Germany and 106 tons of structural material from Belgium.

Track Material.—Contracts are being made for third quarter delivery of machine bolts on the current basis of 50, 10 and 10 per cent off list. Included in the Pennsylvania Railroad requirements for third quarter are 400,000 track bolts, 1,500,000 lb. of spikes, 145,200 pair of splice bars (6000 to 7000 tons) and 625,000 tie plates (3500 to 4000 tons).

REINFORCING STEEL

One Inquiry Involves 7900 Tons—Awards the Smallest in Many Weeks

An outstanding inquiry before the market for reinforcing bars is for 7900 tons for the West Philadelphia station of the Pennsylvania Railroad and 1000 tons for a viaduct for the same road. Other pending projects were in small lots and called for approximately 2000 tons. Awards for the week totaled less than for any similar period this year, the total volume reported amounting to only about 2000 tons. Awards follow:

WESTCHESTER COUNTY, N. Y., 150 tons, road work, placed by Patterson & Rossi, Torrington, Conn., with the Concrete Steel Co.
WESTCHESTER COUNTY, 150 tons, road work, to Joseph T. Ryerson & Son.
NEW YORK, 100 tons, Roosevelt High School, the Bronx, to Igoe Brothers.
DETROIT, 210 tons, Chrysler garage, to McRea Steel Co.
DETROIT, 120 tons, Fairmont Creamery, to McRea Steel Co.
DETROIT, 100 tons, St. Anthony High School, to McRea Steel Co.
DETROIT, 100 tons, South Dearborn road bridge, to McRea Steel Co.
GROSSE POINTE, MICH., 100 tons, two bridges, to McRea Steel Co.
CINCINNATI, 300 tons, Queen City Club, to Pollak Steel Co.
CHICAGO, 100 tons, crib house for Crawford Avenue station of the Commonwealth Edison Co., to Concrete Steel Co.
CHICAGO, 230 tons, Prussing Public School, to Kalman Steel Co.
CHICAGO, 160 tons, Bradwell Public School, to Kalman Steel Co.
ILLINOIS, State road work, 160 tons, to Concrete Steel Co.

Reinforcing Bars Pending

Inquiries for reinforcing steel bars include the following:

NEW YORK, 890 tons, building at King and Charlton Streets, general contract awarded to Turner Construction Co.
ASBURY PARK, N. J., 300 tons, public utility office building; bids not yet taken.
PHILADELPHIA, 7900 tons, West Philadelphia station of Pennsylvania Railroad; low bidder on contract the O'Neil Co., 127 East Mermaid Lane, Philadelphia.
PHILADELPHIA, 1000 tons, viaduct for Pennsylvania Railroad.
WORCESTER, MASS., 225 tons, Whitehall Building.
CHICAGO, 400 tons, factory building for Kozelka & Kozelka; S. N. Crowen, architect.
CHICAGO, 200 tons, Wieboldt Hall for the University of Chicago.

Gary By-Product Coke Plant Accident

The accident to the coke oven plant of the Illinois Steel Co. at Gary, Ind., on the morning of June 14, resulting in the death of 11 men and injury to 42 others, was not so serious to the plant as first reports indicated. On June 15, 80 per cent of the ovens were in operation and the saturators, which were only slightly damaged, were placed back in service within 24 hr. after the explosion.

San Francisco

Large Tonnage of Plates and Shapes Pending—German Coke En Route

SAN FRANCISCO, June 12 (*By Air Mail*).—Business during the week has been confined to routine developments. A shipment of about 500 tons of Indian foundry iron has been received by a local importer and is being offered at about \$25 per gross ton, duty paid, f.o.b. cars San Francisco. Shipments of German iron and coke are en route, and are expected to arrive the latter part of this month or early in July. The local demand for German coke has materially increased since the walk-out of the British miners. Local importers have virtually withdrawn all quotations on English coke. German by-product fuel is being offered at about \$11.50 to \$12.50 per ton at incoming dock. In the heavier forms of steel fresh inquiry has been unimportant, and prices generally remain untested.

Pig Iron.—A local importer has received a fresh shipment of about 500 tons of Indian foundry iron. Shipments of German iron are en route. A local broker is understood to be offering Dutch foundry at about \$22.50 to \$23. Buying is signally conservative.

	Per Gross Ton
*Utah basic	\$26.00 to \$27.00
*Utah foundry, sil. 2.75 to 3.25...	26.00 to 27.00
**English foundry, sil. 2.75 to 3.25.	25.00
**Indian foundry, sil. 2.75 to 3.25.	25.00
**German foundry, sil. 2.75 to 3.25.	23.00 to 23.50
**Dutch foundry, sil. 2.75 to 3.25.	22.50
**Belgium foundry, sil. 2.75 to 3.25.	22.00

*Delivered San Francisco.

**Duty paid, f.o.b. cars San Francisco.

Shapes.—While fabricated steel lettings for the week total less than 400 tons, bids have closed on several good-sized jobs and fresh inquiries call for 3576 tons. The largest individual award of the week, 200 tons for a Santa Fe Railway ferry slip in Oakland, was taken by the Moore Dry Dock Co. Bids are expected to be called about July 15 on about 2400 tons for a hotel at Powell and Sutter Streets, San Francisco. The opening of bids on a Scottish Rite Temple in Oakland, which calls for 1750 tons, has been postponed until about June 29. Eastern mills continue to quote plain material at 2.30c. to 2.35c., c.i.f. Coast ports.

Plates.—The Steel Tank & Pipe Co., Berkeley, Cal., is low bidder on 1400 tons for a municipal pipe line at Tacoma, Wash. The Puget Sound Machinery Depot, Seattle, Wash., has taken 300 tons for a pipe-line for the city of Seattle. No fresh inquiries of importance have come into the market. Eastern mills quote 2.25c. to 2.30c., c.i.f. Coast ports.

Bars.—The local carpenters' strike continues. No individual lettings of over 100 tons are known to have been closed during the week in reinforcing bars. However, there is a good deal of tonnage pending. Local reinforcing bar jobbers continue to quote as follows: 2.80c., base per lb. on lots of 250 tons; 2.95c., base per lb. on carload lots, and 3.20c., base, on less-than-carload lots.

Cast Iron Pipe.—The city of Palo Alto, Cal., has placed 211 tons of 6, 8 and 12-in. "mono-cast" iron pipe with the American Cast Iron Pipe Co., and 80 tons of 4, 14, and 16-in. "De Lavaud" pipe with the United States Cast Iron Pipe & Foundry Co. The city of Santa Ana, Cal., has awarded 100 tons of 4 and 6-in. Class B

pipe to the Pacific Pipe & Supply Co., Los Angeles. It is understood that French pipe will be furnished. The United States Cast Iron Pipe & Foundry Co. is low bidder on 100 tons of 4 and 6-in. Class B pipe for the city of Stockton, Cal. The city of Seattle, Wash., is taking bids on 550 tons for the Ashworth Street project. About 412 tons of 4, 6, 8 and 10-in. Class B pipe is required by the city of Los Angeles under Specification 740. Bids will close June 21. Quotations are unchanged at \$50 to \$52 base, water shipment, San Francisco.

Warehouse Business.—Current sales are for small lots. Fresh business is slow in developing. Stocks are not heavy, but apparently are adequate for all present demands. Prices are unchanged.

Coke.—The Southern Pacific Co. is expected to place its inquiry for 500 tons within the next few days. No large inquiries have come into the market, but there is a fairly consistent amount of small orders being placed daily. A local importer expects a shipment of German coke the latter part of the month or early in July. Quotations on English coke have been withdrawn. German by-product fuel is quoted at \$11.50 to \$12.50, incoming dock.

Old Material.—No. 1 heavy melting steel is being offered at \$10 to \$10.50 per gross ton, delivered to consumers' yards, but buying is light.

St. Louis

Third Quarter Sheet Bookings Large—Scrap Stronger

ST. LOUIS, June 15.—A few carload lots made up the sales in an unusually dull week in pig iron. The only pending business of consequence is an inquiry for 1250 tons from a St. Louis district melter for delivery within the next 30 days. A southern Illinois consumer is in the market for a small tonnage for prompt delivery. Melters are generally committed to a policy of buying pig iron in conformity with their own orders, which are small, and they are not looking very far into the future. Stocks of pig iron in their hands are low. Prices are unchanged, but all quotations are nominal.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices, \$2.16 freight from Chicago, \$4.42 from Birmingham, all rail, and 81c. average switching charge from Granite City:

Northern fdy., sil. 1.75 to 2.25...	\$22.66 to \$23.16
Northern malleable, sil. 1.75 to 2.25	22.66 to 23.16
Basic	23.16 to 24.16
Southern fdy., sil. 1.75 to 2.25...	24.92 to 26.42
Granite City iron, sil. 1.75 to 2.25.	22.81 to 23.31

Coke.—Shipments of coke from by-product ovens are said to be heavier than at this time last year. A number of good-size contracts for shipment over the next 12 months are in the making. Demand for domestic coke is seasonally quiet.

Finished Iron and Steel.—The leading sheet interest in the district reports that bookings for the third quarter, which include orders up to 1000 and 2000 tons, exceed those for the second quarter business, as well as for the third quarter of last year. Price cutting, which originated with Eastern mills, continues to be a disturbing factor. Railroad business is light. No new structural business is reported, although a new court house building and a 37-story hotel are in prospect.

Old Material.—The market is a bit stronger, and a few items are higher, but this is due entirely to activities of dealers, who are buying with the idea that the time is right to lay down material or are purchasing to fill contracts. Consumers are showing no interest whatever in the market unless a "bargain" is offered. Railroad lists include: Chesapeake & Ohio, 10,200 tons; Southern Railway, 6800 tons; Wabash Railway, 4600 tons; Texas & Pacific, 1750 tons; Missouri-Kansas-Texas, 1000 tons; Southern Railway sub-

Warehouse Prices, f.o.b. San Francisco

	Base per Lb.
Plates and structural shapes.....	3.30c.
Mild steel bars and small angles.....	3.30c.
Small channels and tees, ¾-in. to 2¼-in..	3.90c.
Spring steel, ¾-in. and thicker.....	6.30c.
No. 28 black sheets.....	4.75c.
No. 10 blue annealed sheets.....	3.75c.
No. 28 galvanized sheets.....	6.00c.
Common wire nails, base per keg.....	\$3.50
Cement coated nails, base per keg.....	3.00

sidiaries, 850 tons; St. Louis-San Francisco, 800 tons; International-Great Northern, 600 tons, and Standard Oil Co. (Wood River, Ill.), 150 tons.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

Per Gross Ton	
Iron rails	\$11.00 to \$11.50
Rails for rolling	15.00 to 15.50
Steel rails less than 3 ft.	15.50 to 16.00
Relaying rails, 60 lb. and under	24.00 to 25.00
Relaying rails, 70 lb. and over	30.00 to 31.00
Cast iron car wheels	15.50 to 16.00
Heavy melting steel	12.00 to 12.50
Heavy shoveling steel	12.00 to 12.50
Frogs, switches and guards cut apart	14.00 to 14.50
Railroad springs	16.00 to 16.50
Heavy axle and tire turnings	8.50 to 9.00
No. 1 locomotive tires	16.00 to 16.50
Per Net Ton	
Steel angle bars	11.50 to 12.00
Steel car axles	16.75 to 17.25
Iron car axles	20.50 to 21.00
Wrought iron bars and transoms	17.75 to 18.25
No. 1 railroad wrought	10.00 to 10.50
No. 2 railroad wrought	11.00 to 11.25
Cast iron borings	8.50 to 9.00
No. 1 busheling	9.25 to 9.75
No. 1 railroad cast	14.50 to 15.00
No. 1 machinery cast	16.50 to 17.00
Railroad malleable	13.00 to 13.50
Machine shop turnings	5.75 to 6.25
Bundled sheets	6.50 to 7.00

Buffalo

Pig Iron Inquiry Increases—Warehouse Prices on Sheets Decline

BUFFALO, June 15.—Pig iron inquiry has improved, totaling 15,000 tons, including some sizable lots. The General Electric Co. is understood to have placed the remainder of the 5080 tons for which it was in the market. A Buffalo foundry has purchased 4000 tons of foundry iron for the third quarter, and individual orders for 3000 tons, 2000 tons and 1000 tons have been placed. Among current inquiries is one for 3000 tons for the third quarter, which the prospective buyer is attempting to place at a concession. The market, however, is holding firmly to \$20, base, and the regular silicon differentials are being applied. The Lackawanna plant of Bethlehem Steel Co. is now operating five blast furnaces in place of six, leaving a total of 12 active stacks in the district.

We quote prices per gross ton, f.o.b. Buffalo, as follows:

No. 2 plain fdy., sil.	1.75 to 2.25	\$20.00
No. 2X foundry, sil.	2.25 to 2.75	20.50
No. 1X foundry, sil.	2.75 to 3.25	21.50
Malleable, sil. up to 2.25		20.00
Basic		19.00
Lake Superior charcoal		29.28

Finished Iron and Steel.—Warehouse business is reported good, but prices on No. 28 black, No. 10 blue annealed, and No. 28 galvanized sheets have been reduced. Mill operations in Buffalo remain about the same, and prices on bars are firm at 2.265c., Buffalo, while those on shapes and plates are steady at 2.165c., Buffalo. On black sheets better than 3.25c., base Pittsburgh, has been done. Reinforcing bar business is not so active as a short time ago, although one inquiry for 250 tons for a factory addition is being figured.

Warehouse Prices, f.o.b. St. Louis

Base per Lb.	
Plates and structural shapes	3.25c.
Bars, mild steel or iron	3.15c.
Cold-finished rounds, shafting and screw stock	3.75c.
No. 28 black sheets	4.60c.
No. 10 blue annealed sheets	3.60c.
No. 28 galvanized sheets	5.70c.
Black corrugated sheets	4.65c.
Galvanized corrugated sheets	5.75c.
Structural rivets	3.65c.
Boiler rivets	3.85c.
Per Cent Off List	
Tank rivets, 1/4-in. and smaller	.70
Machine bolts	.50 and 5
Carriage bolts	.47 1/2
Lag screws	.55 and 5
Hot-pressed nuts, square, blank or tapped	
Hot-pressed nuts, hexagons, blank or tapped	3.25c. off per lb.
	3.75c. off per lb.

Old Material.—Market sentiment has improved, and the belief is almost general that the bottom has been reached. In some cases dealers are losing on heavy melting steel orders, finding it necessary to pay as high as \$16 for steel to apply on orders taken at \$15.50 to \$15.75. One mill continues to offer \$14.50 for its grade of heavy melting steel, without securing much tonnage. Sales of turnings during the week have been made at \$10. Two consumers of stove plate have come into the market, and the price has stiffened to \$14.50, with some reports that \$15 has been paid. Some sales of mixed

Warehouse Prices, f.o.b. Buffalo

Base per Lb.	
Plates and structural shapes	3.40c.
Mild steel bars	3.30c.
Cold-finished shapes	4.45c.
Rounds	3.95c.
No. 28 black sheets	4.45c.
No. 10 blue annealed sheets	3.80c.
No. 28 galvanized sheets	5.60c.
Common wire nails, base per keg	\$3.90
Black wire, base per 100 lb.	3.90

turnings and borings have been made, with the last transaction at \$12. Production of borings and turnings has declined.

We quote prices per gross ton, f.o.b. Buffalo, as follows:

Heavy melting steel	\$14.50 to \$14.75
Selected No. 1 heavy melting steel	15.50 to 15.75
Low phosphorus	17.50 to 18.00
No. 1 railroad wrought	14.00 to 14.50
Car wheels	17.00 to 17.50
Machine shop turnings	9.50 to 10.00
Mixed borings and turnings	11.50 to 12.00
Cast iron borings	11.50 to 12.00
No. 1 busheling	14.50 to 14.75
Stove plate	14.00 to 14.50
Grate bars	13.00 to 13.50
Hand-bundled sheets	10.00 to 10.50
Hydraulic compressed	14.50 to 14.75
No. 1 machinery cast	16.00 to 16.25
Railroad malleable	16.50 to 17.00
Iron axles	24.00 to 25.00
Steel axles	16.00 to 16.50
Drop forge flashings	12.75 to 13.25

Seattle

Early Canning Season Favorable to Tin Plate Consumption

SEATTLE, June 10.—The falling off in inquiries and business closed referred to in a previous report is more pronounced, and it looks as though the local steel trade had entered the quiet period which usually sets in with advent of summer weather. In spite of the decrease in new orders, prices are holding well. No marked declines have occurred during the past two weeks.

Two local jobbers report that their trade in May declined as compared with April, while so far this month it has been lighter than in the first 10 days of last month. The beginning of the fruit and vegetable canning season is close at hand, and this will mean increased consumption of tin plate and other products. All fruits and vegetables on the Coast are at least three weeks early this year on account of the very mild winter.

Pig Iron.—Local demand is quiet, reflecting the operations of foundries, which are at less than 50 per cent of capacity. Reports are that 500 tons of foreign foundry grade iron is on the way to Seattle, but details are not available. The Utah maker is quoting \$25.50 to \$26 per gross ton, delivered Seattle, for basic iron, but foreign iron is quoted at least \$3 per ton lower.

Structural Material.—New work is slow in being closed. Bids will soon be asked on the new stadium at Portland, requiring 800 tons, while a new Pantages theater to be built in that city will be steel construction and a Masonic building at Tacoma will take 125 tons. The lower house of Congress has issued a permit for the building of the much-talked-of bridge at

Longview, Wash., but it will likely be some time before bids are asked, as the Senate also has to pass on the matter. It is estimated that the bridge would take about 2000 tons. A toll bridge across the Columbia River at Entiat, Wash., just authorized, will take about 300 tons. Shapes are firm at 2.35c., Seattle.

Plates.—Bids were opened at Tacoma, Wash., on June 4, for about 1400 tons of plates for water lines in that city, some of which will replace present wooden lines. The Steel Pipe & Tank Co., Portland, was low bidder on a 34-in. line at 3.45c. per lb., laid on the job, and is expected to get the contract. The Birchfield Boiler Co., Tacoma, was low bidder at 3.74c. per lb. for 36-in. pipe, laid on the job. Either of these two sizes will be used, and a decision is expected in a short time. The Puget Sound Machinery Depot is low bidder on a standpipe at Tacoma, requiring about 300 tons of plates. Jobbers report sales of carloads of plates at 2.30c., delivered Seattle, but on a very attractive order, 2.25c., could be done. Reports are current of sales at that figure.

Sheets.—There is continued weakness in sheet prices, and demand is light. General quotations are 3.025c. for blue annealed, 3.83c. to 3.88c. for No. 28 black, and 4.985c. to 5.035c. for No. 28 galvanized, these prices being c.i.f. Seattle.

Wire Products.—Demand for wire nails is fair, but for wire and fencing is light. Wire nails are quoted at \$3.20 per keg, in 80,000 lb. carloads, delivered Seattle.

Steel Bars.—The leading Eastern maker wired its local representative this week not to accept less than 2.35c., for steel bars, and this is also being quoted by the Pacific Coast Steel Co., the local maker. This price includes truck delivery to customers. Reinforcing bars are in good demand, with the local maker quoting about 2.65c. for Seattle delivery.

Hoops and Bands.—Demand is reported somewhat better, with prices at 3c., c.i.f. Seattle.

Steel Shafting.—Sales are reported at 3.50c. per lb., c.i.f. Seattle. Demand is fairly active.

Cincinnati

Sales of 85,000 Tons of Pig Iron at Low Prices—Southern Drops 50c.

CINCINNATI, June 15.—Taking advantage of the low prices prevalent in this market, pig iron buyers closed for approximately 85,000 tons in the past week. A melter in the southern Ohio district purchased between 40,000 and 60,000 tons of basic iron for third quarter delivery, while the Standard Sanitary Mfg. Co., Pittsburgh, bought 22,000 tons of foundry iron for its Louisville plant for shipment over the remainder of the year. The latter tonnage was divided between two southern Ohio producers and a Lake furnace, at a delivered price of \$21.65. This figures back to \$19, base southern

Ohio furnace, and \$18, base northern Ohio furnace, on all-rail shipments. However, it is understood that part of the iron from southern Ohio will move to Louisville by barge, thereby yielding \$19.65, base furnace. With these two purchases it is believed that pig iron prices have touched bottom. Undoubtedly the position of southern Ohio producers has been strengthened, and a further decline in foundry grades is thought to be only a remote possibility. Concurrent with the stabilization of Northern foundry iron on a basis of \$19, base furnace, come reports of another drop in Alabama iron to \$20.50, base Birmingham. However, even at that figure Southern furnaces are unable to book sizable orders in this territory. The only active merchant furnace in Tennessee is out of the market for the entire third quarter. Meanwhile its nominal quotation is \$20.50, base Birmingham. Jackson County silvery producers are selling small quantities at the prevailing schedule. A local foundry has bought 2000 tons of iron from an Ironton seller, and an Indiana melter has contracted for 1000 tons. Among the outstanding inquiries are 3000 to 4500 tons for an Indiana consumer, 700 tons for the Louisville & Nashville Railroad, and 500 tons each for an Anderson, Ind., foundry and a Coldwater, Ohio, melter.

Based on freight rates of \$3.69 from Birmingham and \$1.89 from Ironton, we quote f.o.b. Cincinnati:

Alabama fdy., sil. 1.75 to 2.25	
(base)	\$24.19 to \$24.69
Alabama fdy., sil. 2.25 to 2.75...	24.69 to 25.19
Tennessee fdy., sil. 1.75 to 2.25...	24.19
Southern Ohio silvery, 8 per cent	30.39
So. Ohio fdy., sil. 1.75 to 2.25...	20.89
So. Ohio malleable.....	20.89 to 21.39

Finished Material.—Specifications and orders in the first half of June have exceeded those in the same period in May, and the volume of inquiries indicates that buying will be well sustained during the remainder of the month. Several producers have announced an advance of \$2 on structural shapes for third quarter delivery, but the present price of 1.90c., base Pittsburgh, will continue to prevail throughout June. The strength shown by bars and shapes has had a stimulating influence on plates, which are selling at 1.90c., base Pittsburgh. Mills, however, are unwilling to contract farther ahead than 60 days at that figure. Improvement in bar tonnage is reported, and the market is firm at 2c., base Pittsburgh. While specifications and orders for sheets have attained satisfactory proportions, prices have suffered from the severe competition between producers for the existing business. Independent mills are quoting black sheets at 3.10c., base Pittsburgh, but some producers have booked a moderate tonnage at 3.20c. Galvanized sheets range from 4.30c. to 4.35c., base Pittsburgh, and sales have been only fair. There has been a steady demand for blue annealed sheets at 2.35c., base Pittsburgh, and surprisingly little pressure for concessions has been brought to bear by consumers. Automobile body sheets are bringing 4.20c., base Pittsburgh, but buyers are restricting purchases to small quantities for quick delivery. In wire goods the sales of fencing and nails have been outstanding. Common wire nails are quoted at \$2.65 per keg, Ironton or Pittsburgh, and plain wire at \$2.50 per 100 lb., Ironton or Pittsburgh. Fabricators regard the number of pending projects which probably will be awarded in the next 30 days as indicative of an active summer. Two local gas holder fabricators each have several months work ahead of them.

Reinforcing Bars.—The Pollak Steel Co. will supply 300 tons of bars for the new building of the Queen City Club, Cincinnati. No other projects of importance were before the trade in the past week, and no fresh jobs of consequence are expected to appear in the immediate future. New billet bars continue to be quoted at 2c., Cleveland, and rail steel bars at 1.90c., mill.

Warehouse Business.—The number of sales has held up well, but the tonnage has been light. The total business to date in June has equaled that in the previous month, but the demand for structural steel has shown a declining tendency. Quotations are unchanged.

Warehouse Prices, f.o.b. Cincinnati

	Base per Lb.
Plates and structural shapes....	3.40c.
Bars, mild steel or iron.....	3.30c.
Reinforcing bars	3.30c.
Hoops	4.00c. to 4.25c.
Bands	3.95c.
Cold-finished rounds and hexagons	3.85c.
Squares	4.35c.
Open-hearth spring steel.....	4.75c. to 5.00c.
No. 28 black sheets.....	4.10c. to 4.30c.
No. 10 blue annealed sheets.....	3.60c.
No. 28 galvanized sheets.....	5.25c. to 5.40c.
Structural rivets	3.75c.
Small rivets .....	.65 per cent off list
No. 9 annealed wire, per 100 lb.....	\$3.00
Common wire nails, base per keg.....	2.95
Cement coated nails, base per 100-lb. keg..	3.15
Chain, per 100 lb.....	7.55
Net per 100 Ft.	
Lap welded steel boiler tubes, 2-in.....	\$18.00
4-in.	38.00
Seamless steel boiler tubes, 2-in.....	19.00
4-in.	39.00

Coke.—Specifications for by-product foundry coke have been fairly satisfactory, although they have not quite reached the level attained in May. Both New River and Wise County foundry grades have been in active demand. An Indiana consumer has contracted with a local dealer for approximately 1500 tons of by-product foundry for shipment over the remainder of the year. Prices are steady and unchanged.

Based on freight rates of \$2.14 from Ashland, Ky., \$3.53 from Connellsville, and \$2.59 from Wise County ovens and New River ovens, we quote f.o.b. Cincinnati: Connellsville foundry, \$7.53 to \$9.53; Wise County foundry, \$6.84 to \$7.59; New River foundry, \$9.59 to \$10.09; by-product foundry, \$9.64 to \$10.14.

Old Material.—While there has been no actual improvement in sales, the tone of the market is better. Mills in this district are taking shipments on contract at a fair rate. The quotations given below are nominal. Railroads now are taking bids on approximately 40,000 tons of scrap, 8915 tons of which is steel rails. The lists closing this week are as follows: Chesapeake & Ohio, 10,000 tons; Norfolk & Western, 5500 tons; Louisville & Nashville, 8500 tons, and Southern, 6000 tons.

We quote dealers' buying prices, f.o.b. cars, Cincinnati:

Per Gross Ton

Heavy melting steel.....	\$11.00 to \$11.50
Scrap rails for melting.....	11.50 to 12.00
Short rails	16.50 to 17.00
Relaying rails	27.00 to 27.50
Rails for rolling.....	13.00 to 13.50
Old car wheels.....	12.50 to 13.00
No. 1 locomotive tires.....	16.50 to 17.00
Railroad malleable	15.00 to 15.50
Agricultural malleable	13.50 to 14.00
Loose sheet clippings.....	6.50 to 7.00
Champion bundled sheets.....	8.50 to 9.00

Per Net Ton

Cast iron borings.....	6.50 to 7.00
Machine shop turnings.....	6.00 to 6.50
No. 1 machinery cast.....	17.00 to 18.00
No. 1 railroad cast.....	13.50 to 14.00
Iron axles	20.00 to 20.50
No. 1 railroad wrought.....	8.50 to 9.00
Pipes and flues.....	7.00 to 7.50
No. 1 busheling.....	8.50 to 9.00
Mixed busheling.....	6.50 to 7.00
Burnt cast	6.50 to 7.00
Stove plate	8.50 to 9.00
Brake shoes	9.00 to 9.50

Boston

Price Concessions Bring Out Pig Iron Buying—Better Demand for Shapes

BOSTON, June 15.—Open inquiries for pig iron are still scarce. That of the General Fire Extinguisher Co., Providence, R. I., for 1500 tons, one half No. 2X and one half No. 1X foundry iron, for third quarter, is the only one of any size. Private sales of iron have increased noticeably the past week or ten days, however, as a result of lower prices made on certain brands. Most buying is for third quarter, but fourth quarter iron has also been sold. A sizable tonnage of eastern

Pennsylvania No. 2X iron for third quarter was sold at \$24.65 a ton, delivered, or on the basis of \$20.50, furnace, for No. 2 plain. New York State No. 2X foundry for third and fourth quarter shipment has been sold at delivered prices equivalent to less than \$19, base Buffalo furnace, and German No. 1X has been disposed of at \$21, duty paid, f.o.b. dock, Providence, R. I. Alabama iron has been sold at \$1 a ton less than two weeks ago, while Virginia iron is offered more freely at \$22, base furnace, than heretofore. The Mystic Iron Works, Everett, Mass., in meeting foreign competition and, as previously stated, has sold iron at \$21, base furnace. To meet that price for delivery at Westfield, Mass., for example, Buffalo iron would have to be sold at \$18.48, furnace. Buffalo iron, however, is still held at \$20, furnace base. Recent transactions include sales of special analysis charcoal iron at \$28.50, furnace.

We quote delivered prices on the basis of the latest sales as follows, having added \$3.65 freight from eastern Pennsylvania, \$4.91 from Buffalo, \$5.92 from Virginia, and \$9.60 from Alabama:

East. Penn., sil. 1.75 to 2.25.....	\$24.15 to \$25.15
East. Penn., sil. 2.25 to 2.75.....	24.65 to 25.65
Buffalo, sil. 1.75 to 2.25.....	24.91
Buffalo, sil. 2.25 to 2.75.....	25.41
Virginia, sil. 1.75 to 2.25.....	27.92 to 29.92
Virginia, sil. 2.25 to 2.75.....	28.42 to 30.42
Alabama, sil. 1.75 to 2.25.....	27.91 to 30.60
Alabama, sil. 2.25 to 2.75.....	28.41 to 31.10

Warehouse Business.—The movement of iron and steel out of warehouse remains only fair. Consumers are buying cautiously and are demanding prompt delivery. One of the largest sales made this week was a car of Wayne iron, local stocks of which are now practically exhausted. Stocks of standard bars, shapes and plates are small but fairly well assorted. Warehouse prices on such materials are firm. The demand for wire and cut nails is good.

Old Material.—Offered prices are practically the same as last week, while business continues on a limited scale. There are inquiries for several hundred tons of machinery cast, and stove plate is offered more freely than heretofore, but there are few takers. Holders of heavy melting steel are not disposed to sell at prevailing prices. Machine shop turnings have been sold in a small way at \$8.60 a ton on cars, but the prevailing range of prices for such material is \$8 to \$8.50. Supplies of chemical borings have tightened up, and some business has been closed at \$10.35. The Boston & Albany Railroad recently closed bids on approximately 1500 tons of material, and the General Electric Co. on 22 carloads of miscellaneous material. So far as can be ascertained, bids submitted were in line with those quoted below.

The following prices are for gross-ton lots delivered consuming points:

Textile cast	\$19.50 to \$20.00
No. 1 machinery cast.....	19.00 to 19.50
No. 2 machinery cast.....	17.00 to 18.00
Stove plate	13.00 to 13.50
Railroad malleable	18.50 to 19.00

The following prices are offered per gross-ton lots, f.o.b. Boston rate shipping points:

No. 1 heavy melting steel.....	\$10.00 to \$10.50
No. 1 railroad wrought.....	12.00 to 12.50
No. 1 yard wrought.....	12.00 to 12.50
Wrought pipe (1 in. in diameter, over 2 ft. long).....	9.00 to 9.50
Machine shop turnings.....	8.00 to 8.50
Cast iron borings, chemical.....	10.00 to 10.50
Cast iron borings, rolling mill.....	8.00 to 8.50
Blast furnace borings and turnings	8.00 to 8.50
Forged scrap	8.00 to 8.50
Bundled skeleton, long.....	8.00 to 8.50
Forged flashings	8.00 to 8.50
Bundled cotton ties, long.....	8.25 to 8.50
Bundled cotton ties, short.....	8.50 to 9.00
Shafting	15.00 to 15.50
Street car axles.....	15.00 to 15.50
Rails for rerolling.....	11.00 to 11.50
Scrap rails	10.00 to 10.50

Shapes and Plates.—Buying of shapes for third quarter delivery has grown suddenly active because of intimations by mill representatives that prices will be advanced \$2 a ton within the near future. The demand for plates, although hardly active, is improving because of talk of higher prices. At the moment both plates and shapes are strong at 1.90c per lb., base Pittsburgh. The fabricated steel market was featured the past week by the placing of a sizable number of small contracts. Two buildings for Brown University, Providence, R. I.,

Warehouse Prices, f.o.b. Boston

	Base per Lb.
Soft steel bars and small shapes.....	3.265c.
Flats, hot rolled.....	4.15c.
Reinforcing bars	3.265c. to 3.54c.
Iron bars—	
Refined	3.265c.
Best refined	4.60c.
Norway, rounds	6.60c.
Norway, squares and flats.....	7.10c.
Structural shapes—	
Angles and beams.....	3.365c.
Tees	3.365c.
Zees	3.465c.
Plates	3.365c.
Spring steel—	
Open-hearth	5.00c. to 10.00c.
Crucible	12.00c.
Tire steel	4.50c. to 4.75c.
Bands	4.015c. to 5.00c.
Hoop steel	5.50c. to 6.00c.
Cold-rolled steel—	
Rounds and hexagons.....	3.95c.
Squares and flats.....	4.45c.
Toe calk steel.....	6.00c.

one requiring 200 tons and the other 350 tons, will be refigured.

Coke.—Specifications against first half by-product foundry coke contracts have fallen off this month as compared with May, but are about on a par with those for June, 1925. June, July and August usually are quiet months in the coke market. Approximately 98 per cent of the New England foundries have contracted for last half fuel. The New England Coal & Coke Co. and the Providence Gas Co. quote \$12 a ton, delivered within a \$3.10 freight rate zone. The market for Connellsville district foundry coke is easier, with some business reported at around \$10 a ton, delivered.

Birmingham

Steel Bars Firmer at 2.25c.—Pig Iron Sales at \$21

BIRMINGHAM, June 15.—Alabama pig iron is selling at \$21 per ton for No. 2 foundry grade for third quarter delivery. The larger melters are looking for a further concession, but it is denied that a 50c. reduction reported elsewhere has been made on third quarter business. Quotations have been made and a few spot orders have been taken in the last few days on a \$22 per ton basis. Production is being maintained. Output in Alabama for the first five months exceeded that

for the same period last year by more than 15,000 tons and a corresponding showing is expected this month. Cast-iron pipe shops are all busy and plan for steady operation through the third quarter. The new shop of the American Cast Iron Pipe Co. will start in the next few weeks.

We quote per gross ton, f.o.b. Birmingham district furnaces, as follows:

No. 2 foundry, 1.75 to 2.25 sl.	\$21.00 to \$22.00
No. 1 foundry, 2.25 to 2.75 sl.	21.50 to 22.50
Basic	21.00 to 22.00
Charcoal, warm blast	30.00 to 32.00

Coke.—The market is good enough to keep production up to a maximum. Quotations are \$5.50 to \$6 per ton, net, with spot coke at \$6.50.

Finished Steel.—Production continues steady. Steel bars now more readily command 2.25c., base Birmingham.

Old Material.—No change can be reported. There is little buying.

We quote per gross ton, f.o.b. Birmingham district yards, as follows:

Cast iron borings, chemical	\$15.00 to \$16.00
Heavy melting steel	13.00 to 14.00
Railroad wrought	12.00 to 13.00
Steel axles	18.00 to 19.00
Iron axles	18.00 to 19.00
Steel rails	18.00 to 18.50
No 1 cast	17.00 to 17.50
Tramcar wheels	17.00 to 17.50
Car wheels	16.00 to 16.50
Stove plate	14.00 to 14.50
Machine shop turnings	8.00 to 8.50
Cast iron borings	8.00 to 9.00
Rails for rolling	15.00 to 16.00

Dumping of German Pig Iron Alleged

Treasury Department Asked to Act—German Government Sends a "Note" on Countervailing Duties on Steel

WASHINGTON, June 15.—It was disclosed today that the German Embassy in the latter part of last week presented a note to the State Department regarding the Treasury's countervailing order, effective June 20, applying to imports of iron and steel products from Germany. At the Treasury it was said the note had not yet been received from the State Department, but the latter made it known that the communication would be turned over to the Treasury.

Care was taken at the State Department to explain that the communication was a "note" rather than a "protest." Its tenor was not revealed and it is not known whether the "note" will be made public at all. It was said at the Treasury Department that the countervailing order will be made effective beginning next Sunday, but it is not yet definitely known on what products the duty will be applicable. Generally, it is assumed it will be assessed against all those listed in the Treasury order, with the exception of pig iron.

It is reported that despite claims to the contrary bonuses are paid in Germany on all the rolling mill products listed, as well as on remanufactured products, such as engines, parts, etc. The shipments from Germany, if received after June 20, will be passed through the customs ports in the United States without interference of any kind and the countervailing duties applied when the Treasury learns what the June bounties are, and where such bounties actually have been paid. Determination of whether bounties have been paid is left to the American consuls in Germany.

A communication was filed with the Treasury Department recently by Eastern pig iron interests representing that German pig iron imports to the United

States this year have been in violation of the anti-dumping act. An analysis is made, showing that when duty, commissions, ocean freights and railroad freights from furnace to German port are deducted, German pig iron has been sold in the United States at prices which figure back to \$3 to \$4 a ton less than those prevailing in Germany on iron sold for domestic consumption.

The following tabulation of export prices on German iron and steel products in March, April and May, together with the export bonuses for April, as fixed by the German Steel Ingot Association, has been made from figures given in the *London Iron and Coal Trades Review*, issues of March 5, April 2 and April 30. Prices are in reichmarks per metric ton—1 reichmark = 23.82c.:

	Export Prices			Export Bonus April
	March	April	May	
Ingots	90	90	90	10
Blooms	92	92	92	15
Billets	95	95	95	15
Sheet bars	98	95	98	15
Bars	106	105	102	22
Shapes	100	99	98	24
Universal flats	...	122	...	17
Hoops	125	125	122.50	25
Wire rods	115	115	115	20
Plates	118	117	115	21
Boiler plate	...	147	...	22
Medium sheets (3 to 5 mm.)	120	120	117.50	15
Thin sheets (1 to 3 mm.)	135	135	135	15
Thin sheets (under 1 mm.)	155	155	155	15
Light railroad material	...	109	...	25
Heavy rails	...	120	...	15
Tubes	...	310	...	55
Dynamo sheets	...	260	...	40
Transformer sheets	...	680	...	45

NON-FERROUS METAL MARKETS

		June 9	June 10	June 11	June 12	June 14	June 15
The Week's Prices	Lake copper, New York.....	14.00	14.00	14.00	14.00	14.12 1/2	14.12 1/2
	Electrolytic copper, N. Y.*..	13.62 1/2	13.62 1/2	13.62 1/2	13.62 1/2	13.75	13.75
	Straits, tin, spot, New York..	59.62 1/2	59.40	60.50	.....	61.00	61.00
	Lead, New York.....	7.90	8.00	8.10	8.10	8.10	8.25
	Lead, St. Louis.....	7.65	7.75	7.85	7.85	7.85	7.85
	Zinc, New York.....	7.45	7.47 1/2	7.50	7.50	7.60	7.60
	Zinc, St. Louis.....	7.10	7.12 1/2	7.15	7.15	7.25	7.25
	Cents per Pound for Early Delivery						

*Refinery quotation; delivered price ¼c. higher.

NEW YORK, June 15.—The better tone noted last week has expanded and all the markets are active and higher. There has been good buying of copper, tin and zinc on rising prices and the advance in lead has been exceedingly rapid, accompanied by heavy purchasing.

Copper.—Sales of electrolytic copper during the week have been of fairly large proportions with prices ranging from 13.87½c. to 14c., delivered, business being done at gradually increasing prices from the lower level until 14c. was established as a minimum yesterday. The expansion is a gradual one with consumers the principal buyers. Inquiries are also on a large scale today. Sales for foreign consumption are also reported as heavy, particularly to Germany, France and England. The statistics for the month of May showed a decrease of 3275 tons in refined stocks and also a decrease in deliveries to domestic consumers, explained partly by the recent strike at Perth Amboy. The statistics as a whole were to the advantage of sellers rather than of consumers. Lake copper is quoted at 14.12½c., delivered.

Tin.—Sales of Straits tin have been fairly large, with the total estimated at 1000 tons. For the week ended Friday, June 12, about 800 tons had been sold, with 150 tons on Saturday and 100 tons yesterday. Sales embraced principally July and August delivery. Spot metal is unobtainable with the exception of some 99 per cent Chinese tin. Sentiment in the market continues better and consumers are well covered for June, July and August delivery. It is really due to the bet-

ter sentiment, which exists generally in business, that tin prices have advanced in the last week, rather than to any other cause. Spot Straits tin today was quoted at 61c., New York, an advance of over 2c. for the week. A fair business was done today, futures selling at 59.75c. to 60.62½c. London prices were also considerably higher than a week ago, with spot standard quoted at £268 15s., future standard at £268 12s. 6d. and spot Straits at £277 15s. The Singapore price today was £274 15s. Arrivals thus far this month have been 4040 tons, with 5894 tons reported afloat.

Lead.—The most active market in many weeks is recorded. The American Smelting & Refining Co. has advanced its New York contract price three times, or \$10 per ton, in less than a week. On June 10 the advance was from 7.65c. to 7.80c., on June 11 from 7.80c. to 8c. and early today 8.15c. was announced. Consumers had been heavy buyers before the first advance was made and then, after the 8c. level was reached, they continued to buy heavily. The real reason for the sharp advance is not clear because American production is high and consumption continues good. The foreign situation, however, in lead is by no means favorable.

Zinc.—The price advance, which started two weeks ago, has continued and prime Western zinc today is quoted at 7.25c., St. Louis, or 7.60c., New York, for early delivery. Galvanizers have been fairly active buyers, several lots of 100 to 300 tons having changed hands at prices ranging from 7.10c. to 7.25c., St. Louis. There is a fair inquiry before the market.

Nickel.—Ingot nickel in wholesale lots is quoted at 35c. with shot nickel at 36c. and electrolytic nickel at 39c. per lb.

Antimony.—Chinese metal for spot delivery is

Metals from New York Warehouse

Delivered Prices per Lb.

Tin, Straits pig.....	62.00c. to 63.00c.
Tin, bar	65.00c. to 66.00c.
Copper, Lake	15.25c.
Copper, electrolytic	15.00c.
Copper, casting	14.75c.
Zinc, slab	8.00c. to 8.50c.
Lead, American pig.....	8.50c. to 9.00c.
Lead, bar	10.75c. to 11.75c.
Antimony, Asiatic	12.00c. to 13.00c.
Aluminum, No. 1 ingot for remelting (guaranteed over 99 per cent pure).....	30.00c. to 30.50c.
Babbitt metal, commercial grade.....	30.00c. to 35.00c.
Solder, ½ and ⅓ guaranteed.....	39.00c.

Metals from Cleveland Warehouse

Delivered Prices per Lb.

Tin, Straits pig.....	64.50c.
Tin, bar	66.50c.
Copper, Lake	15.00c.
Copper, electrolytic	15.00c.
Copper, casting	14.00c.
Zinc, slab	8.25c.
Lead, American pig.....	8.50c. to 8.75c.
Antimony, Asiatic	16.50c.
Lead, bar	10.50c.
Babbitt metal, medium grade	21.50c.
Babbitt metal, high grade	70.50c.
Solder, 50-50	39.75c.

Rolled Metals from New York or Cleveland Warehouse

Delivered Prices, Base per Lb.

Sheets—	
High brass	18½c. to 19½c.
Copper, hot rolled	22½c. to 23½c.
Copper, cold rolled, 14 oz. and heavier, 24½c. to 25½c.	
Seamless Tubes—	
Brass	23½c. to 24½c.
Copper	24½c. to 25½c.
Brazed Brass Tubes.....	26½c. to 27½c.
Brass Rods	16½c. to 17½c.

From New York Warehouse

Delivered Prices, Base per Lb.

Zinc sheets (No. 9), casks.....	12.75c.
Zinc sheets, open	13.25c.

Non-Ferrous Rolled Products

Mill prices in brass, bronze and copper products are unchanged, except copper wire which is ¼c. higher. Zinc and lead sheets have not been changed since May 1.

List Prices Per Lb. f.o.b. Mill

On Copper and Brass Products, Freight up to 75c. Per 100 Lb. Allowed on Shipments of 500 Lb. or Over

Sheets—

High brass	18.87½c.
Copper, hot rolled	22.50c.
Zinc	11.25c.
Lead (full sheets)	11.50c.

Seamless Tubes—

High brass	23.50c.
Copper	24.25c.

Rods—

High brass	16.62½c.
Naval brass	19.37½c.

Wire—

Copper	15.87½c.
High brass	19.37½c.
Copper in Rolls	21.37½c.
Brazed Brass Tubing	26.87½c.

Aluminum Products in Ton Lots

The carload freight rate is allowed to destinations east of the Mississippi River and also allowed to St. Louis on shipments to destinations west of that river.

Sheets, 0 to 10 gage, 3 to 30 in. wide....	37.50c.
Tubes, base	48.00c.
Machine rods	34.00c.

Rolled Metals f.o.b. Chicago Warehouse

(Prices Cover Trucking to Customers' Doors in City Limits)

Sheets—	Base per Lb.
High brass	18 3/4 c. to 19 1/4 c.
Copper, hot rolled	22 1/4 c.
Copper, cold rolled, 14 oz. and heavier	24 1/4 c.
Zinc	12.00c.
Lead, wide	11.08c.
Seamless Tubes—	
Brass	23 1/4 c. to 25c.
Copper	24 1/4 c. to 25 1/4 c.
Brazed Brass Tubes	26 1/4 c. to 29 1/4 c.
Brass Rods	16 1/4 c.

quoted at 10.25c. to 10.50c., New York, duty paid, with futures at about the same level.

Aluminum.—Virgin metal, 98 to 99 per cent pure, is obtainable as ingots at 27c. to 28c. per lb., delivered.

CHICAGO, June 15.—This market is showing greater strength and the price of copper is unchanged, while tin, lead and zinc have advanced. Antimony lacks strength and is off 1/2c. With the exception of aluminum, the old metal market is more active, lead being in the greatest demand. We quote, in carload lots, Lake copper, 14.12 1/2c.; tin, 60.50c.; lead, 7.80c.; zinc, 7.20c.; in less than carload lots, antimony, 12.50c. On old metals we quote copper wire, crucible shapes and copper clips, 10.50c.; copper bottoms, 9.50c.; red brass, 9.25c.; yellow brass, 8c.; lead pipe, 7c.; zinc, 5c.; pewter, No. 1, 36c.; tin foil, 43.50c.; block tin, 52c.; aluminum, 18c., all being dealers' prices for less than carload lots.

To Build River-to-Rail Terminal at Cincinnati

Immediate construction of a river-to-rail terminal in Cincinnati has been decided upon by the Cincinnati River-Rail Transfer Co. The terminal will consist of a pier with railroad tracks, and will be served by an electric crane. Freight is to be transferred from barges to railroad cars at the rate of 40 tons an hour. The first unit of the terminal will be completed by fall, but the project as a whole is designed so that a series of electric gantry cranes may be erected when the increase in river traffic warrants the expenditure. It is expected that the operation of the terminal will stimulate barge shipments of iron and steel products both from the Pittsburgh and the Ironton, Ohio, districts.

Munich Museum Bestows Memberships on Americans

A luncheon in honor of Dr. Ing. Paul Reusch, retiring president of the Deutsches Museum, in Munich, Germany, and president of Gutehoffnungshütte, Oberhausen, Germany, was given at the headquarters in New York of the Chamber of Commerce of the State of New York, June 10, by the trustees of the Museums of the Peaceful Arts. A feature of the luncheon was the presentation by Dr. Reusch of certificates of membership in the Deutsches Museum to Judge Elbert H. Gary, United States Steel Corporation, Dr. Michael I. Pupin, Columbia University, New York, Dr. John W. Lieb, New York Edison Co., New York, Dr. Calvin W. Rice, secretary American Society of Mechanical Engineers, New York, and E. W. Rice, Jr., General Electric Co., Schenectady, N. Y. In his address he said: "Germany has found that the technical museum is of the highest inspiration and, I might even say, essential, to the industrial progress of a nation."

"We saw the honorary president of the General Electric Co., E. W. Rice, who, with his wonderful engineering skill combined with leadership, has done so much to bring the General Electric Co. to the forefront of the great industrial organizations of this nation, and by his breadth of view fosters research in many realms.

"We saw J. W. Lieb, vice-president and general manager of the New York Edison Co., with his won-

Old Metals Per Lb. New York

The buying prices represent what large dealers are paying for miscellaneous lots from the smaller accumulators, and the selling prices are those charged consumers after the metal has been properly prepared for their uses.

	Dealers' Buying Prices	Dealers' Selling Prices
Copper, heavy crucible	11.75c.	13.25c.
Copper, heavy and wire	11.25c.	12.25c.
Copper, light and bottoms	9.75c.	11.00c.
Brass, heavy	7.25c.	8.75c.
Brass, light	6.25c.	7.75c.
Heavy machine composition	8.75c.	10.00c.
No. 1 yellow brass turnings	8.25c.	9.00c.
No. 1 red brass or composition turnings	8.00c.	9.00c.
Lead, heavy	7.00c.	7.25c.
Lead, tea	5.00c.	6.25c.
Zinc	4.25c.	4.75c.
Sheet aluminum	17.00c.	19.00c.
Cast aluminum	17.00c.	19.00c.

derful versatility in many realms of endeavor, but of course principally in the electric lighting industry to which he has devoted himself for years and is known throughout the world. We rejoice to see him identified prominently with this museum.

"In looking over the world as to how we could best recognize and encourage such men in this work, it was the unanimous vote of the board to confer lifelong membership of the board upon these gentlemen. In doing so, it was with the hope that each of them would feel that there was no better way in which he could devote his talents than to the furthering of this object.

"To my great regret the certificates of membership have not yet arrived, although they appear to have been mailed on May 28. I hope, however, that they will arrive in time for me to hand them personally to the gentlemen after my return from California in July."

Philadelphia Fabricator Expands

The Montgomery Iron & Steel Co., 918 Berks Street, Philadelphia, fabricator of steel and ornamental iron work, has purchased a plot of ground, 160 x 527 ft., bounded by Duncan, Sepvia and Church Streets and Aramingo Avenue, on which it is building a plant. The location is in a growing industrial section and the move of the company is one of considerable expansion. In the new plant it will have a capacity of about 2000 tons of fabricated steel per month.

A new office building is now about half completed. It is a two-story structure, 50 x 56 ft., on the ground floor of which will be the shop and shipping offices, while the executive offices will occupy the second floor. The main shop building will be 160 x 300 ft., of corrugated iron and steel sash construction. It will contain one 10-ton crane, two 5-ton and two 3-ton cranes of box design. The company has recently installed an Espen-Lucas column facer and will purchase a gate shear of a type not yet decided. When completed, the plant will be one of the best equipped in the district. The floor plan and placing of machinery are designed to permit the straight flow of material and product, that for city delivery going to the truck-loading platforms, and that for rail shipment being placed on cars within the shop. A Pennsylvania Railroad siding will enter the building. It is expected the new building will be ready for occupancy about Sept. 1.

The company some time ago sold its present site in Berks Street to the United Gas Contracting Co., which will erect a building there for its own use. The Montgomery Iron & Steel Co. is said to be the oldest organization of its kind in Philadelphia, having been started in 1812 and being first known as John S. Stevens & Co. After several changes in name and ownership it assumed its present name. The present owners are W. Nelson Mayhew and Samuel Frank.

For driving a second seamless tube rolling mill of the Gary Tube Co., Gary, Ind., a 1500-hp. 62 1/2 r.p.m. mill-type synchronous motor will be furnished by the Allis-Chalmers Mfg. Co.

PERSONAL

Arnold J. Lenz, assistant to the general manager of the Saginaw Products Co., Saginaw, Mich., has prepared the annual exchange paper of the American Foundrymen's Association to be delivered before the Institute of British Foundrymen this month. His subject is "Quality in Quantities." Mr. Lenz



ARNOLD J. LENZ

was born in Hauingen, Germany, and emigrated to the United States in 1906 at the age of 18. His first two years here were spent working his way through two terms of the New York State Normal School at Fredonia, N. Y. Two years later he entered the employment of the Browning Foundry Co., Ravenna, Ohio, and after working as a molder, coremaker and melter at the Alliance Brass & Bronze Co., he took his first foremanship with the

Ryder Brass Foundry Co., Bucyrus, Ohio. Later he was connected with the American Clay Machinery Co. of the same city, as assistant foundry foreman, and still later with the American Range & Foundry Co., Cleveland, as assistant to the manager. Assuming a position as instructor in the foundry of the Buick Motor Co., Flint, Mich., in 1916, he was later promoted to the position of general foundry foreman and assistant superintendent in the same year. In 1919 he became assistant to the manager of the Aluminum Castings Co., Detroit. A little later he returned to the General Motors Corporation as superintendent of the gray iron foundry of the Saginaw Products Co., which was then being built. In 1922 he became manager of that plant and in June, 1925, was promoted to the position which he now holds.

Charles H. Overkamp, who has been resident manager at San Francisco for a number of years for Manning, Maxwell & Moore, New York, has entered into business and organized the Overkamp Machinery Co., as production engineer and sales agent for the following companies in the machinery and foundry business: Manning, Maxwell & Moore, Shaw Crane Co., Deitrick & Harvey, Springfield Machine Tool Co., Baush Machine Tool Co., Bignall & Keeler Machine Works, Hubbard Steel Foundry Co., National Machinery Co., Boye & Emmes Machine Tool Co. and a number of other prominent manufacturers, with offices in the Rialto Building, San Francisco.

Horace C. Knerr, consulting metallurgical engineer, has changed his address to 538 East Washington Lane, Germantown, Philadelphia. He is consultant to the United States Naval Aircraft Factory, Wright Aeronautical Corporation, Summerill Tubing Co. and others, and is director of the metallurgical course in Temple University.

Meyer L. Freed, recently associated with the Bureau of Standards, Washington, in an investigation of mullite, which has been temporarily discontinued, has resumed a former position as research engineer with Henry A. Golwynne, 26 Cortlandt Street, New York, importer of "Shamva" mullite from India.

P. F. McDonald, president P. F. McDonald Steel Co., Boston, Mass., is now in Sweden on a business trip. His company imports Swedish iron and steel,

representing Sandviken Steel Works, Sandviken; Fagersta Bruks, Fagersta, and Hellefors Bruks, Hellefors, Sweden.

Dr. Ing. Paul Reusch, president Gutehoffnungshütte, Oberhausen, Germany, manufacturer of structural steel, rails, plates and sheet bars, is spending a number of weeks in the United States, accompanied by Dr. Hermann Reusch, his son, who will remain some months studying coal and other mining conditions in this country, and by Georg Lübsen, vice-president of the company. Dr. Paul Reusch recently was president of the Deutsches Museum in Munich. His itinerary includes California.

K. Huessener, president American Heat Economy Bureau, Inc., Wabash Building, Pittsburgh, sailed for Europe on June 15. Apart from taking care of his British interests, Mr. Huessener intends to make a study of open-hearth port design in the various European countries. He will be absent for about three months.

Charles R. Meissner, superintendent by-product coke department, Weirton Steel Co., Weirton, W. Va., who was recently elected vice-president of the Eastern



C. R. MEISSNER

States Blast Furnace and Coke Oven Association, was graduated from Cornell University in 1912, as a civil engineer. Since that time he has served successively as a mining engineer for the Oliver Mining Co., Eveleth, Minn., in the blast furnace and coke plant of the Inland Steel Co., Indiana Harbor, then for two years as assistant superintendent in charge of the by-product and benzol departments of the coke plant, LaBelle Iron Works, East Steubenville, W. Va., which was followed by five years as an experimental engineer with the Koppers Co., Pittsburgh.

He was in charge of the construction of the by-product coke plant of the Weirton Steel Co., Weirton, W. Va., and upon its completion was appointed superintendent.

Dr. Albert Sauveur, professor of metallurgy, Harvard University, Cambridge, will sail for Europe July 3 with the expectation of returning Sept. 8. He plans to attend the meeting of the Iron and Steel Institute to be held in Stockholm, Sweden, the last week in August and the meeting of the Institute of Metals (British) at Liège, Belgium, the first week in September.

J. W. Weitzenkorn has been reelected president of the Molybdenum Corporation of America, Empire Building, Pittsburgh; other officers reelected were: Vice-president, Marx Hirsch; secretary-treasurer, James S. Crawford; assistant treasurer, William B. Kuntz. The position of chairman of the board was discontinued. The management reported favorably on the operations of the company's mining properties at Red River, New Mexico, which is now in its fourth year of continuous operation.

D. T. Croxton of the Cleveland-Cliffs Iron Co., Cleveland, and vice-president of the Trumbull Cliffs Furnace Co., Warren, Ohio, sailed for Europe on June 5 for a six weeks' trip.

Prof. T. McLean Jasper, formerly of the University of Illinois, has taken charge of the research activities of the A. O. Smith Corporation, Milwaukee. Professor

Jasper is a recognized authority on "fatigue of metals." His contributions in this field have taken the form of numerous papers. The Smith company manufactures automobile frames and the research division has been active in investigation of characteristics and structure of metals as applied to this phase of the automotive industries. In addition, the company makes high-pressure stills and couplings for the petroleum industry and places great emphasis on the qualities of the steels used.

J. W. Patterson, formerly in charge of fence sales in the New York office, American Steel & Wire Co., is the new district sales agent in Atlanta, where the company recently opened an office.

H. A. Robinson has been transferred from the Philadelphia office of Rogers Brown & Crocker Brothers, Inc., to the Pittsburgh office.

A. E. Ackerman has recently assumed his duties as general manager of operation, Wheeling Corrugating Co., subsidiary of Wheeling Steel Corporation.

S. Duncan Black, president Black & Decker Mfg. Co., Towson, Md., W. C. Allen, sales supervisor, and E. D. Allmendinger, export manager, went abroad on the Berengaria on June 2. After several days in London at the offices of Black & Decker, Ltd., 79 Great Queen Street, Kingsway, they will go to Paris, Rome, Milan, Turin, Zurich, Vienna, Prague, Berlin, Amsterdam, Brussels and back to London, sailing for home on Aug. 10. On this tour they will visit every distributor

of Black & Decker electric tools in the localities named and will also call on the large plants equipped with Black & Decker electric tools.

President Julius Kahn of the Truscon Steel Co., Youngstown, returned this week from a trip of inspection to the company's Far Eastern plant in Japan. He was accompanied by Vice-President T. H. Kane, who continued travels in the Orient.

Edward W. Smith has been appointed assistant manager of sales, Pittsburgh Steel Co., succeeding George W. Jones, who recently was promoted to manager of sales.

George Puchta, president Queen City Supply Co., Cincinnati, recently was elected president of the Commercial Club of Cincinnati.

Stanley H. Bullard, vice-president Bullard Machine Tool Co., Bridgeport, and past-president of the Connecticut Chamber of Commerce and a director of the Chamber of Commerce of the United States, was the author of a brief article on "Assets and Liabilities of General Business," published in the *Financial Digest*, Hartford, Conn.

Arthur Dorman, Dorman, Long & Co., has been visiting the steel plants in Alabama and in the latter part of this or early next week will take in the Youngstown plants in his itinerary.

OBITUARY

AUGUSTUS B. SEELIG, vice-president and general manager, Michigan Copper & Brass Co. since 1919, died June 2 after a brief illness. Burial was in Rochester, N. Y. Mr. Seelig was 49 years old, and had spent the greater portion of his business life with the Chase Companies, Inc., Waterbury, Conn., rising to the position of secretary and sales manager before going to Detroit. He was born in Southington, Conn.

AUGUST BUERKLE, inventor of the Monarch water heater and one of the founders of the Monarch Water Co., now the Pittsburgh Water Heater Co., Pittsburgh, died at his home in that city on June 8. He was born in Blairsville, Pa., 83 years ago, and besides the water heater was the inventor of various other appliances that have found common use in steel plants.

HARVEY CLARK McCLARY, 78 years of age, vice-president Fairbanks, Morse & Co., Chicago, died at his home in Evanston, Ill., May 30.

JOHN THOMSON, president Thomson National Press Co., Long Island City, N. Y., died May 31 at his home in Brooklyn at the age of 72. Mr. Thomson for more than 35 years was engaged in mechanical, electrical and civil engineering, especially in the design and manufacture of printing presses and water meters. He obtained more than 200 patents in this country and abroad.

CHESTER D. MASSEY, honorary chairman of the board of directors Massey-Harris Co., manufacturer of farm implements, died on June 2 at his home in Toronto, Ont., at a ripe old age. He was associated with the company for many years after its founding by his father in 1843. He retired from active business several years ago.

CLIFFORD W. WATSON, industrial pioneer of New Castle, Pa., died in that city recently after being in

failing health for the past year. He was born in New Castle on July 5, 1849. He was associated with William Patterson in the National Bank of Lawrence County. Later he became president Vulcan Iron Co., Ltd., now out of business. Mr. Watson was a promoter and part owner of the Standard Wire Co., New Castle, and was interested in the first electric light plant of that city.

JAMES L. WEST, 40 years old, president Dorsey Mfg. Co. and secretary Lerch-Shumate Bolt Co., died on Thursday, June 3, at his home in Louisville, Ky. Mr. West was also secretary-treasurer Eccentric Gear Co. and was formerly manager at Louisville of the Southern Weighing and Inspection Bureau.

HENRY E. GRAHAM, owner and manager Graham Mfg. Co., engineer and machinist, Racine, Wis., died on June 5 at the age of 61 years. He was born in Racine and was an expert machinist and designer of tools and mechanical appliances in prominent use throughout the Central West.

CAMILLE CAVALIER, president Société Anonyme des Hauts-Fourneaux et Fonderies de Pont-à-Mousson, France, large producer of cast iron pipe, died on Thursday, June 10. He was a member of the Comité des Forges de France, president of Société des Fonderies de Bayard et St.-Dizier, vice-president of the Micheville Steel Works and a member of the board of directors of the Rombas, the Marine et Homecourt and the Allevarde companies. Mr. Cavalier was born in 1853. He is said to have developed the famous Briey iron ore basin and to have discovered the coal fields of Campine and in the East of France.

MAJOR ALEX LAUGHLIN, JR., Pittsburgh, head of the engineering firm of Alex Laughlin & Co., president Central Tube Co. and a director of the Verona Tool Works and the Monongahela National Bank, died Saturday, June 12. His death occurred while he was under an anesthetic for the extraction of a tooth. He was 38 years old, a graduate of Yale University and a veteran of the World War.

Machinery Markets and News of the Works

MORE RAILROAD ORDERS

Further Buying by Illinois Central and Boston & Albany

Pending Inquiry from Carriers Large and Interest Shown at Atlantic City Is Encouraging—Otherwise Market Is Dull

SLIGHT improvement in the volume of machine tool buying is reported at New York, where the upturn of the stock market is credited with restoring confidence among consumers. Cincinnati also reports "moderate" business, but a dull market prevails in most other centers. The impression is gaining ground that demand may lag somewhat in the next 60 days but that the fall season will bring a resumption of purchases on a large scale.

The trade, however, is encouraged by the interest which the railroads are taking in new equipment. This has been particularly in evidence at the railroad convention at Atlantic City, N. J., where many of the machines exhibited are expected to be sold from the booths and shipped directly to the buyers.

Reports from the West indicate that the Illinois Central has closed for at least one-half of its list for Paducah, Ky., and may complete its purchases within

the next 10 days. In New England the Boston & Albany has concluded buying for its Springfield, Mass., shops. Numerous other scattered railroad orders were placed throughout the country, and pending inquiry from the carriers bulks large.

While little business is coming from the automobile builders, the International Harvester Co. continues to place orders for its Rock Island, Ill., tractor plant and the A. O. Smith Corporation, Milwaukee, is reported to have placed several heavy tools.

At Pittsburgh the Carnegie Steel Co. is about to close for a large press and other auxiliary equipment for its new H-beam mill, which, contrary to unauthentic reports, will not be completed or in operation before Jan. 1.

Orders for machine tools in May were 109.1 per cent of the average of shipments in the years 1922, 1923 and 1924. Shipments in the month were 149.5. Both in orders and shipments May was the lowest month so far this year. Unfilled orders on June 1 stood at about 215 or somewhat over two months output, based on the average shipments of the three years mentioned. The index of unfilled orders was 290 at the end of December; it rose to nearly 320 at the end of January, and has since gradually fallen off. These figures are based on information collected by the National Machine Tool Builders' Association.

New York

NEW YORK, June 15.

A SLIGHTLY perceptible improvement in the volume of machine tool buying was noticed last week by some leading selling agencies in this market. There has been at all times in the past several months a fairly large volume of inquiry before the trade, but the placing of orders slowed up somewhat during May, and the betterment, such as it is, is credited to the restoration of greater confidence among manufacturers. The upward turn in the speculative markets may have had some effect on the buying attitude. Companies which are exhibiting tools at the railroad convention at Atlantic City, N. J., report unusual interest in railroad shop tools and many of the machines exhibited will be sold before the convention closes and shipped direct to the buyers.

An Eastern company has obtained a substantial share of orders placed last week by the Illinois Central Railroad at Chicago, its orders including a double-head frame slotter, a carwheel lathe, a 36-in. x 12-ft. engine lathe, a 1500-lb. steam hammer, two 1100-lb. steam hammers, a 96-in., 800 ton wheel press. Another railroad at Chicago bought two axle lathes. A Pittsburgh company has bought a 6-ft. radial drill. Among other miscellaneous orders are the following: A vertical surface grinder to a company at Elmira, N. Y.; a 16-in. geared-head lathe to a machine tool manufacturer in Milwaukee; a jig boring machine to a Detroit automobile company; a 16-in. geared-head lathe to a Minneapolis manufacturer; a centering machine to a Canton, Ohio, company, a milling machine to a Fort Wayne, Ind., company.

Contract has been let by Steinway & Sons, 109 West Fifty-seventh Street, New York, manufacturer of pianos, player equipment, etc., to the E. E. Paul Co., 101 Park Avenue, for a new six-story plant, 200 x 370 ft., at Long Island City, to cost about \$700,000 with machinery. W. H. Benedict and A. Ulrick, 371 Fulton Street, Brooklyn, are architects.

Fire, June 5, destroyed a portion of the three-story factory at 448 East 148th Street, New York, occupied by the Electric Machine & Elevator Co., and the Veteran Cabinet Co., both plants being heavily damaged, exact amount of loss not announced. It is planned to replace the loss.

The Cities Service Co., 60 Wall Street, New York, operating electric light and power companies, oil refining interests, and kindred public utilities in different sections of the country, has arranged for a bond issue of \$5,000,000, a portion of the fund to be used for expansion and improvements. Henry L. Doherty is president.

The M. O'Neill Supply Co., 25 Cliff Street, New York, manufacturer of iron pipe, fittings, etc., has awarded a general contract to the Walter Kidde Co., 90 West Street, for its proposed two-story factory, 100 x 400 ft., at Queens, L. I. to cost in excess of \$90,000. The Ballinger Co., 100 East Forty-second Street, is architect.

In connection with a general expansion program, the United States Gypsum Co., New Brighton, S. I., has work under way on a new plant unit to be ready for service during July. Plans have been authorized for a second unit at the same works, consisting of a one-story mill, 36 x 565 ft., for the manufacture of plaster-board and kindred products. The company will also build a new gypsum board mill at Detroit, and make additions to its several other mills in the South and West. It is also planning the erection of a series of storage and distributing plants in the New York district, as well as in other cities, including a chain of five such structures on the Pacific Coast. The entire program is reported to cost in excess of \$5,000,000. Headquarters are at 205 West Monroe Street, Chicago.

The Cap Screw & Nut Co. of America, Inc., 290 Hudson Street, New York, has secured property at 15 Kirk Place, Newark, N. J., for a new factory branch and distributing warehouse.

The International Motor Co., 25 Broadway, New York, has asked bids on general contract for a one-story service, repair and garage building, 170 x 270 ft., at White Plains, N. Y., to cost about \$180,000 with equipment. Falle & Seelye, 101 Park Avenue, New York, are architects.

Fire, July 8, destroyed a portion of the machine shop of Philip H. Gill & Sons, Lorraine, Otsego and Cramer Streets, Brooklyn, with loss estimated at \$25,000 with equipment. It is planned to rebuild.

The United Electric Light & Power Co., 130 East Fifteenth Street, New York, has filed plans for a one-story power house, 59 x 154 ft., at Locust Avenue and 134th Street, to cost about \$100,000 with equipment. Thomas E. Murray, Inc., 55 Duane Street, is engineer.

The Gibraltar Corrugated Paper Box Co., now projecting a new plant at North Bergen, N. J., has headquarters at 91 Seventh Avenue, New York, instead of Brooklyn, as previously reported. A general contract has been let to Bonanno Brothers, 388 Bergenline Avenue, Union City, N. J., for the initial plant, two stories, 125 x 430 ft., to cost \$300,000 with equipment.

The National Concrete Products Corporation is being organized to take over a group of about 75 manufacturing plants in this line in various parts of the country, with two primary units of the consolidation to be the Cinder Tile Co., 250 Park Avenue, New York, and the Concrete Specialties Co., Camden, N. J. The new corporation will arrange for a security issue to carry out the merger and will develop complete manufacturing facilities at the different units for the production of cinder-concrete brick, hollow fireproofing tile, building block, flooring and roofing tile, and other cast concrete building products. It is proposed to establish headquarters at Philadelphia, and L. A. Goodwin, Camden, is slated to be chairman of the board. Charles R. Flint & Co., Inc., 25 Broad Street, New York, is in charge of consolidation arrangements.

The Lucas-Lamborn Loom Corporation, 132 Front Street, New York, has developed a new type of textile loom, with shuttle carried on arms and other patented features, and plans to develop extensive output of the equipment at its plant at 1160 Fairmount Avenue, Elizabeth, N. J.

The D. & P. Roofing Tile Co., Jersey City, care of Bonanno Brothers, 388 Bergenline Avenue, Union City, N. J., contractors, has leased a factory recently completed on the Hackensack Plank Road, North Bergen, for the manufacture of tile products.

The Russell-Schwarz Co., 109 Frelinghuysen Avenue, Newark, manufacturer of cabinets, etc., has taken out a permit to erect a new plant at 56 Earl Street, to cost about \$50,000 with equipment.

O. F. Semach, 111 East Fortieth Street, New York, architect, has plans for a two-story automobile service, repair and garage building, 100 x 150 ft., at Montclair, N. J., to cost about \$80,000 with equipment.

The Everlive Rubber Corporation, Newark, has leased a building at 28 Cherry Street, for the establishment of a new plant for the manufacture of rubber goods. The structure will be remodeled and equipped for the employment of about 75 operatives.

The Board of Public Works, Perth Amboy, N. J., has authorized an immediate call for bids for equipment for the proposed electrification of the municipal waterworks.

Fire, June 7, destroyed the three buildings, 158 x 300 ft., comprising the plant of the Liberty Cut Glass Works, Buffalo Avenue, Egg Harbor, N. J., with loss estimated in excess of \$200,000 with machinery. Plans for rebuilding are under consideration.

L. J. Buck, 9 East Forty-sixth Street, New York, importer of fluorspar, has taken the firm name of Buck, Kiaer & Co., Inc.

The Port Mfg. Co., 158 Summit Street, Newark, is being organized to manufacture radio receivers, but until such time as a plant can be equipped, the company will let out its work on contract. The Port Mfg. Co. is affiliated with the Daven Radio Corporation, also at 158 Summit Street, Newark.

The Union County Iron Works has moved from 644 Franklin Street, Elizabeth, N. J., to larger quarters at 533 Third Avenue.

The U. S. Fountain Safety Razor Corporation, 320 Broadway, New York, has been incorporated with capital stock of \$25,000 to manufacture safety razors.

Toch Brothers, 320 Fifth Avenue, New York, manufacturers of metal protective paints and rust preventives, have changed their name to the Standard Varnish Works & Toch Brothers, Inc., and have removed to 443 Fourth Avenue, New York.

The Bracher Co., Inc., 225 Main Street, Belleville, N. J., manufacturer of whet stones, abrasive materials and cutter of agate for scale bearings, has recently completed a new factory building, 85 x 265 ft., at a cost of \$55,000. The company advises that it has no connection whatever with the Karl Bracher Corporation, recently organized.

Philadelphia

PHILADELPHIA, June 14.

JOHN J. NESBITT, Inc., Atlantic City, N. J., manufacturer of ventilators and kindred metal goods, has awarded a general contract to the Bowden Construction Co., 1607 Summer Street, Philadelphia, for its proposed one and two-story plant, 180 x 195 ft., at Philadelphia, estimated to cost \$120,000 with equipment. The Ballinger Co., Twelfth and Chestnut Streets, Philadelphia, is architect.

The C. H. Wheeler Mfg. Co., Nineteenth Street and Sedgley Avenue, Philadelphia, manufacturer of surface condensers and auxiliaries, will erect a one-story machine shop, for which a general contract has been let to the Robert Lamb Co., 843 North Nineteenth Street.

The Watson Stabilator Co., Walnut Street Bridge, Philadelphia, manufacturer of automobile shock absorbers, operated by the Motorcraft Mfg. Co., 223 West Sixty-sixth Street, New York, is reported to have plans under way for the construction of a new plant, to cost in excess of \$500,000 with equipment.

The Schneider-Bowman Co., Van Dyke Street, Philadelphia, manufacturer of iron and steel castings, etc., has plans for a two-story foundry, 98 x 100 ft., at Van Dyke and Paul Streets, to cost about \$55,000.

The Philadelphia Rapid Transit Co., Eighth and Dauphin Streets, Philadelphia, has awarded a general contract to H. E. Baton, Inc., 1713 Sansom Street, for a one-story automobile service, repair and garage building, 150 x 340 ft., for company motor buses and cars, reported to cost \$180,000 with equipment. W. C. Dunbar is president.

The Imperial Type Metal Co., 1220 North Howard Street, Philadelphia, manufacturer of printers' equipment and supplies, has acquired property, 139 x 706 ft., at Tioga Street and Aramingo Avenue, for \$50,000 and is said to be contemplating the early construction of a new plant to occupy practically the entire site.

The Champion Incandescent Light Co., 635 Market Street, Philadelphia, manufacturer of electric lighting fixtures, has leased space in the eight-story building at 418-26 Cherry Street, totaling about 25,000 sq. ft., for a new plant.

The Edward G. Budd Mfg. Co., Twenty-fifth Street and Hunting Park Avenue, Philadelphia, manufacturer of steel automobile bodies, has awarded a general contract without competition to the Wark Co., 1600 Walnut Street, for its proposed one-story addition, 70 x 145 ft., to cost in excess of \$100,000 with equipment, instead of a smaller amount previously noted.

The Peerless Service Station, Inc., Philadelphia, has leased the two-story building at 1315-37 Windrim Avenue, for a new service, repair and garage building.

The Mack International Motor Co., 25 Broadway, New York, has asked bids on revised plans for its proposed new service, repair and garage building at Camden, N. J., to cost about \$100,000 with equipment.

The Board of Education, Abington, Pa., will soon begin the erection of a two-story and basement power house, 57 x 85 ft., for local schools, including a gymnasium department, estimated to cost \$45,000.

A. E. Pausser, 1055 Locust Street, Philadelphia, has filed plans for a proposed two-story machine shop, 45 x 60 ft., to cost approximately \$30,000.

The Wilson-Martin Co., Thirty-sixth Street and Grays Ferry Avenue, Philadelphia, meat packer, contemplates the installation of a cold storage and refrigerating plant in its proposed abattoir addition, estimated to cost \$250,000. C. S. Foster is general manager.

The Williamsport-Buick Co., Williamsport, Pa., local representative for the Buick automobile, will ask bids before the close of the month for a proposed two-story service, repair and headquarters building, 115 x 150 ft., at 405-11 West Third Street, to cost about \$150,000, with equipment. F. Arthur Rianhard, Masonic Temple Building, is architect.

The Hudson Coal Co., Wyoming Avenue, Carbondale, Pa., is completing plans for the construction of a new colliery at its mines near Middleport, Pa., to cost in excess of \$350,000 with machinery. The company also purposes to establish an extensive housing development for employees at the mines.

J. W. Jones, Watsonstown, Pa., has concluded arrangements for the purchase of property between Avenues D and E, Riverside, near Watsonstown, as a site for a new foundry for the production of iron castings. Plans will soon be drawn. It will be operated as the Jones Foundry.

In connection with a proposed expansion and improvement program, the Norristown Water Co., Norristown, Pa., plans the installation of additional pumping equipment and auxiliary machinery with a daily capacity of 10,000,000 gal., estimated to cost \$50,000. Jay B. Russell is superintendent.

The Crane Market

THE outstanding award of the past week in electric overhead cranes was the list of 13 cranes for the Atlantic Coast Line, purchased by Dwight P. Robinson & Co., New York. Cranes for the New York Rapid Transit Corporation, Brooklyn, N. Y., Tannin Corporation, New York, Stone & Webster, Inc., Boston, and the General Electric Co., Schenectady, N. Y., are still pending. Inquiry for locomotive cranes is light. The New York Central & Hudson River Railroad is understood to have decided upon purchase of the standard 20-ton locomotive crane for which it has been in the market and is awaiting further appropriation; a crawl-tread crane is still pending. The crane for the Public Service Production Co., Newark, N. J., has not yet been closed, probably due in part to the fact that it will not be needed until fall. The Waldrich Bleachery, Delawanna, N. J., is reported considering inquiry for a crawl-tread locomotive crane. The New York Edison Co., through Thomas E. Murray, consulting engineer, 55 Duane

Street, New York, is inquiring for an overhead track or I-beam system with 3-ton to 10-ton hand power and electric hoists for the East Fourteenth Street station.

Among recent purchases are:

Atlantic Coast Line Railroad, through Dwight P. Robinson & Co., New York, two 100-ton, 87-span, two 15-ton, 58½-ft. span, three 10-ton, 60-ft. span, two 10-ton, 72-ft. span and four 3-ton travelling bracket cranes from the Shaw Electric Crane Co.

New York Central & Hudson River Railroad, two gantry cranes for handling unit container cars from the McMyler-Interstate Co.

C. H. Wheeler Mfg. Co., Philadelphia, a 10-ton, 47-ft. span electric crane reported purchased from Alfred Box & Co.

Clark Brothers, Olean, N. Y., a 15-ton, 45-ft. span overhead crane from an unnamed builder.

The Logan Valley Glass Co. has been organized by Baltimore interests, with a capital of \$300,000, to take over and expand the Glass Casket Corporation, Altoona, Pa. Facilities will be provided for the manufacture of milk bottles and kindred products. The new company is headed by Charles T. Kaiss, president; Grafton T. Maynard, vice-president; and J. D. Marchant, secretary and treasurer.

Clark Cooper, 624 Perry Building, Philadelphia, is in the market for the following used machine tools and equipment: No. 4 Warner & Swasey turret lathe, No. 2 Warner & Swasey spinning lathe, No. 2 Fox, Monarch or Warner & Swasey turret lathe, No. 2 Pratt & Whitney hand milling machine, 5-hp. a.c. motor and equipment, tool grinder, bench tapping machine, capacity 5/16-in., 20-in. drilling machine, sensitive drill, 16-in. South Bend engine lathe with quick change gears, power hack saw, arbor press, bench vises, 4 and 5 in., bench legs, gas annealing furnace, small air compressor, hangers, shafting, pulleys and belting.

The Asbestos Shingle, Slate & Sheathing Co., Ambler, Pa., has purchased 15 acres at St. Louis, as a site for a Western factory for making its asbestos shingles, corrugated roofing, asbestos lumber and other asbestos products. The property extends along the Chicago, Burlington and Quincy Railroad and is adjacent to a cement plant which will supply the cement used in the manufacture of the company's products. Building will start at once.

The Star Sprinkler Corporation, Westmoreland and Collins Streets, Philadelphia, has recently been incorporated and is spending approximately \$75,000 to equip a factory to manufacture its line of automatic sprinkler equipment.

Whitney-MacDonald, Inc., 2320 East Tioga Street, Philadelphia, manufacturer of power plant piping and fittings, has changed its name to the MacDonald Corporation.

The Caufman & Clough Mfg. Co., 413 East Thirteenth Street, Wilmington, Del., manufacturer of wood and metal patterns, gray iron castings, and special machinery, has changed its name to the Wilmington Pattern Co.

Buffalo

BUFFALO, June 14.

BIDS will soon be asked by the Pierce Arrow Sales Co., 756 Main Street, Buffalo, for the erection of its proposed one-story service and repair shop, to cost about \$100,000 with equipment. E. C. Bull is president.

Fire, June 9, destroyed a portion of the pattern shop at the plant of the Atlas Steel Casting Co., 1963 Elmwood Avenue, Buffalo, with loss reported at \$21,000 including equipment. Plans for rebuilding are being considered.

The Federal Portland Cement Co., 1082 Ellicott Square Building, Buffalo, is placing initial contracts for building units for its proposed local mill, to cost in excess of \$2,000,000 with machinery. Award for foundations, slurry tanks, etc., has been let to E. P. Muntz, Lehigh Valley Terminal Building; for superstructure, to the Lackawanna Steel Construction Co., Walden Avenue; and for track work, etc., to H. F. Stimm, Ellicott Square Building.

Eugene Meyer, treasurer of the George J. Meyer Malt & Grain Corporation, 1314 Niagara Street, Buffalo, and other officials of the company are forming a new company to take over the property of the Export Elevator Co., Hamburg Turnpike and the Blackwell Canal, recently acquired for about \$200,000. Plans of the new company include the construction of an addition at a later date, with improved hoisting, screening and other equipment.

Fire, June 11, destroyed a portion of the plant of the Olean Charcoal Co., near North First and Wayne Streets, Olean, N. Y., with loss reported at close to \$45,000. Plans for rebuilding are being considered.

The General Railway Signal Co., West Avenue, Rochester, N. Y., has acquired exclusive rights to the manufacture of the automatic signal equipment and train stop devices of the Miller Train Control Corporation. Plant facilities will be arranged for this production, with plans for considerable enlargement in the line of train control apparatus. W. W. Salmon is president.

The Board of Education, Dansville, N. Y., plans the installation of manual training equipment in its proposed new central high school estimated to cost \$300,000, for which bids have just been taken on a general contract.

The Self-Lock Nut & Bolt Co., East Syracuse, N. Y., manufacturer of lag screws, has changed its name to the Self-Lock Screw Products Co.

Auto-Compass, Inc., 991 Main Street, Buffalo, has been incorporated to manufacture an automobile compass. At present it is having its product manufactured on contract.

New England

BOSTON, June 14.

QUIETNESS pervaded the local machine tool market the past week. The Boston & Albany Railroad apparently has completed purchases for its Springfield shops, although some doubt on this point still exists. The New York, New Haven & Hartford Railroad which inquired for a half dozen machines, has taken no action. The tools will be needed later for a Connecticut shop recently destroyed by fire, but the company intimates it will temporarily use machines from other shops. Because of the general slowing up in New England industries, machine tool users, in numerous instances, have decided to put off purchases, with the result that there are fewer live prospects in this market than at any time this year.

Sales of small tools have fallen considerably short of those for the first half of May.

Work will shortly start on alterations to a one-story, 28 x 100 ft. forge shop by the Wyman & Gordon Co., 105 Madison Street, Worcester, Mass. Plans are private.

Swift & Co., 60 North Market Street, Boston, are taking bids on a proposed branch packing house, one-story, 20 x 66 ft., on Alexander Street, Dorchester, for which conveying equipment is needed. Plans are private.

Weston & Sampson, 14 Beacon Street, Boston, engineers, are preparing plans for an Amesbury, Mass., water supply extension to cost \$150,000. The project involves new pumping equipment and a pumping station addition.

The Ford Motor Co. has plans under consideration for the erection of a branch manufacturing plant at Sudbury, Mass., for Ford parts, and will employ approximately 75 operators. A model factory village surrounding the plant is also contemplated. Details are withheld.

The Trucon Steel Co. has moved its Boston offices from 147 Summer Street to 260 Tremont Street, rooms 802-806. G. J. Meyer is the New England manager.

The New York Wire Co. has leased manufacturing quarters at 21-23 South Market Street, Boston.

The Nickel Polishing, Buffing & Plating Works, 86 Francis Avenue, Hartford, Conn., has recently been organized and incorporated, and will have its plant in operation about June 17. The company will do a jobbing business, mostly on automobile work and stove trimming. Stephen G. Gerlach, Sr., is head of the company.

Part of the Bath Iron Works shipbuilding plant, Bath, Me., has been leased to the Foundation Co., New York, which will use the property in connection with construction work for the bridge to be built across the Kennebec River at that point. The land and buildings were recently sold to a syndicate of which Frederick W. Hinckley of South Portland, Me., is the head.

The R. Gustavus Tile Works, Main Street, Woburn, Mass., is contemplating rebuilding the portion of the plant destroyed by fire June 4, with loss reported at \$37,000 including equipment.

Lamont Pratt and Frank Wilson, Hanson, Mass., have acquired a local site and will erect a one-story factory, about 35 x 65 ft., for the manufacture of tacks and kindred specialties. It is understood that a company will be organized to operate the plant, which is expected to be ready for service in about 60 days.

The Quincy Cold Storage Warehouse Co., 133 Commercial Street, Boston, has plans under way for the construction of a new power plant at its T Wharf, Atlantic Avenue, to cost approximately \$250,000 with equipment. F. L. Fairbanks is company engineer.

The Magazine Repeating Razor Co., 285 Madison Avenue, New York, with plant for the manufacture of safety razors at 227 High Street, Newark, N. J., has purchased a factory at Sound Beach, Conn., formerly occupied by the Dalton Lathe Mfg. Co., and will remodel for a new plant. It will be used primarily for razor blade production and equipment from the Newark plant will be removed to the new location.

Bids have been asked on a general contract by the Mack Motor Truck Co., 75 North Beacon Street, Boston, for its two-story service, repair and garage building at Brighton, to cost \$150,000 with equipment. Bids formerly received have been rejected. The Warren Engineering Co., 50 Terminal Street, is engineer.

The Board of Education, Rochester, N. H., has taken bids on a general contract for the erection of a new one-story and basement mechanics arts building at the high school, to cost about \$60,000. Dow, Harlow & Kimball, 184 Boylston Street, Boston, are architects.

The feldspar quarry, brick-manufacturing plant and other property of the Laurel Brick & Sand Co., Laurel, near Middletown, Conn., have been acquired by T. V. Whaley and G. L. Baldwin, both of Providence, R. I. The plant has been closed for some time. The new owners have plans for early resumption of operations, following improvements and machinery replacements.

The Royal Typewriter Co., Hartford, Conn., has asked bids on a general contract for its proposed two-story addition, 95 x 210 ft., to cost in excess of \$150,000 with equipment. Headquarters are at 316 Broadway, New York. Greenwood & Noerr, Hartford, are engineers.

B. F. Perkins & Son, Inc., Holyoke, Mass., manufacturer of paper mill machinery and parts, has plans for an addition to its press shop at Williamsett, Mass., for which superstructure will soon begin. Lockwood, Greene & Co., 24 Federal Street, Boston, are architects and engineers.

Detroit

DETROIT, June 14.

CONTRACT has been let by the Wolverine Tube Co., 1411 Central Avenue, Detroit, manufacturer of metal tubing, etc., to Everett L. Jones, Inc., 1901 Washington Boulevard, for its two-story addition to cost about \$60,000. Carey & Esselstyn, Hofman Building, are architects.

The Richard Brothers Die Works, 1560 East Milwaukee Avenue, Detroit, is said to be planning a new factory at Hillsdale, Mich., reported to cost in excess of \$50,000.

The Detroit Edison Co., 2000 Second Avenue, Detroit, is disposing of a bond issue of \$15,000,000, a portion of the fund to be used for extensions and improvements in power plants and system. Alexander Dow is president.

The Board of Trustees, Mercy Hospital, Fifteenth and Howard Streets, Bay City, Mich., has plans under way for a two-story power house and mechanical laundry, to cost \$65,000 with equipment. Van Leyen, Schilling & Keough, 3440 Cass Street, Detroit, are attorneys.

The Kalamazoo Paraffin Co., Reed and Fulford Streets, Kalamazoo, Mich., is said to be arranging to rebuild the

portion of its plant recently destroyed by fire, with loss reported at \$25,000 including equipment.

The Foote-Reynolds Co., Grand Rapids, Mich., manufacturer of furniture, has work under way on an addition to cost about \$50,000 with equipment.

The Watervliet Paper Co., Watervliet, Mich., has awarded a general contract to the O. F. Miller Construction Co., Pratt Building, Kalamazoo, Mich., for a two-story addition, 100 x 160 ft., to cost \$60,000. William M. Loveland is president. LeRoy & Newlander, Pratt Building, Kalamazoo, are architects.

Langdon, Hohly & Gram, 1742 Nicholas Building, Toledo, Ohio, architects, have plans in progress for a one-story airplane manufacturing plant at Monroe, Mich., for a company whose name is temporarily withheld. It is reported to cost about \$50,000.

The Mechanical Handling Systems, Inc., recently organized, will take over the plant and assets of Cecil R. Lambert Co., Detroit, manufacturer of handling and conveying equipment, etc. Plans have been arranged for expansion in the present works with additional equipment installation. Cecil R. Lambert will head the new organization.

The Board of Education, Constantine, Mich., contemplates the installation of manual training equipment in its proposed two-story and basement high and grade school estimated to cost \$120,000, for which foundations will soon be laid. Billingham & Cobb, Press Building, Kalamazoo, are architects.

The Addac Co., Grand Rapids, Mich., recently organized to manufacture a low-priced adding machine, has begun operations in a local plant on a nominal basis. It is purposed to expand production following the assigning of territory to representatives, and will make additions in the working force.

The Union Steel Products Co., Albion, Mich., has acquired the property of the Blackledge Mfg. Co., Chicago, and will consolidate with its business.

The Automatic Ignition Lock Co., Lansing, Mich., a new company capitalized at \$25,000, will manufacture a patented automatic ignition lock. It is at present located at 229 South Grand Avenue, Lansing, where it is using the facilities of the Hull Machine Works. It is in the market for sheet brass, springs, brass tubing, lock washers and screws. Officers are: Charles A. Hervey, president; Stanley Otto, vice-president; Floyd G. Randall, secretary and treasurer; R. A. Cole, director.

The Grand Rapids Blow Pipe & Dust Arrester Co., Grand Rapids, Mich., manufacturer of an automatic stoking unit, has changed its name to the Newcomb-David Co.

Indiana

INDIANAPOLIS, June 14.

BIDS have been asked by the General Electric Co., Fort Wayne, Ind., for a one-story addition to its local works, 50 x 151 ft. Clifford H. Matson is superintendent.

The Lincoln Chair Co., Thirteenth and Hutchins Streets, Columbus, Ind., has awarded a general contract to Hege & Co., Sixth and Jackson Streets, for a two-story and basement addition, 60 x 142 ft., to cost about \$60,000 with equipment. W. H. Lincoln is president.

Fire, June 8, destroyed a portion of the coal elevators at the yard of the Beckman Supply Co., Hammond, Ind., with loss reported at \$21,000. It is planned to rebuild.

A manual training department will be installed in the two-story addition to be erected at the high school, Elwood, Ind., estimated to cost \$80,000, for which plans are being drawn by McGuire & Shook, Indiana Pythian Building, Indianapolis, architects.

The Grasselli Chemical Co., Guardian Building, Cleveland, is said to have preliminary plans under advisement for the construction of a one-story addition to the zinc department at its plant at Terre Haute, Ind., to cost about \$75,000 with equipment. Henry Gronemyer is company engineer in charge.

The Electric Storage Battery Co., Nineteenth and Allegheny Streets, Philadelphia, has leased the remodeled plant of the Empire Automobile Co., 705-9 North Fulton Street, Indianapolis, for a new factory branch and distributing plant. The property provides about 9000 sq. ft. of floor space, all of which will be used by the company.

The Board of Education, Remington, Ind., contemplates the installation of manual training equipment in its proposed one-story and basement high school estimated to cost \$110,000, for which bids have been asked on a general contract. John Bruck, Kentland, Ind., is architect.

The Board of Education, Meridian Street, Indianapolis, has authorized the installation of manual training departments in the two school additions to be erected at Twelfth and Sterling Streets, and at 1229 East Ohio Street, respec-

tively. Bohn, Mueller & Vonnegut are architects for first noted, and Pierre & Wright, architects for the latter.

J. Everett Jones, Anderson, Ind., care of the Anderson Oil Co., 986 West Eleventh Street, has plans for a three-story and basement automobile service, repair and garage building, 70 x 145 ft., to cost \$80,000. A. F. Miller, Farmers' Trust Building, is architect.

The Superior Boiler Works, Marion, Ind., manufacturer of sheet metal specialties, has changed its name to the Superior Body Corporation.

The George O. Desautels Co., 335 Postal Station Building, Indianapolis, has been appointed by the American Broach & Machine Co., Ann Arbor, Mich., as its representative in that territory.

Chicago

CHICAGO, June 14.

AFALLING off in machine tool sales continues in this market. Inquiries also are coming in slowly and prospective buyers are not in a hurry to close pending business. Figuring on a dollar and cents basis, the Illinois Central list for its Paducah shop is about half closed and no further action is expected until officials who have charge of purchases return from the East. It has placed two small lathes, not shown on its list, for the Chicago shops. The Santa Fe has bought two staybolt drilling machines and a cutting of machine. Used machinery is quiet and fair prices are obtained on equipment in good condition. The International Harvester Co. is still buying for its Rock Island, Ill., tractor plant and the A. O. Smith Corporation, Milwaukee, is reported as having recently purchased several large machine tools.

The Ogden Engineering Co., 511 Moloney Building, Ottawa, Ill., structural steel fabricator, has purchased a site, in North Ottawa, on which it will erect a new plant.

The Capital Iron Works, Topeka, Kan., contemplates the erection of a new structural shop to cost \$200,000.

The Goodman Mfg. Co., 4800 South Halsted Street, Chicago, manufacturer of mining machinery will build a one-story addition, 20 x 108-ft., to cost \$5,000. L. E. Ritter, 140 South Dearborn Street, is the architect.

C. E. Frazier, 30 North Dearborn Street, Chicago, will have plans ready within a week for a one-story machine shop, the owner's name being temporarily withheld. It will cost \$20,000.

The Adjustable Clamp Co., Chicago, manufacturer of the Jorgenson line of hand screws, has purchased the patterns, tools, stock and good will of the clamp manufacturing business of the Evanston plant of the Youngstown Sheet & Tube Co. This plant was formerly owned and operated by the Mark Mfg. Co. and the entire line of Mark carriage and machinists' clamps will be continued by the new owners. The Adjustable Clamp Co. is also making the Snow pattern quick adjusting carriage clamp and is issuing a new catalog covering the enlarged line and showing dealers' discounts. The plant and office of the company have been moved from 216 North Jefferson Street to 417 North Ashland Avenue, Chicago.

The Morris Paper Mill Co., 111 West Washington Street, Chicago, will soon take bids for a one-story and basement factory branch and distributing plant at Morris, Ill., to cost \$60,000 with equipment. C. A. Chapman, 9 South Clinton Street, Chicago, is architect. M. F. Leopold is president.

The Somerville Machine Co., Coal City, Ill., is considering rebuilding the portion of its plant destroyed by fire June 1, with loss estimated at \$60,000, including equipment.

Maurice L. Bein, 64 West Randolph Street, Chicago, architect, has preliminary plans for a two-story automobile service, repair and garage building, to cost \$100,000 with equipment.

The Minot Oil & Refining Co., Minot, N. D., has tentative plans for the construction of a new oil refinery, to cost \$110,000 with machinery. A. M. Fruh, Tolley, N. D., heads the organization.

The Chicago Pneumatic Tool Co., 572 West Randolph Street, Chicago, has plans for a new two-story plant, 50 x 157 ft., estimated to cost \$50,000. A. Epstein, 2001 West Pershing Road, is architect and engineer.

The Kinsey-Rutherford Co., 809 Main Street, Peoria, Ill., has completed plans for a three-story automobile service, repair and garage building, 80 x 170 ft., to cost \$70,000 with equipment.

The Board of Education, City Hall, St. Paul, Minn., has completed plans for a three-story and basement addition to the Hammond occupational school, including improvements in the present building, estimated to cost \$115,000. F. X. Tewes, City Hall, is city architect.

The Board of Education, Bedford, Iowa, plans the installation of manual training equipment in its proposed two-story and basement high school to cost \$150,000, for which bids are being asked on a general contract until June 30. Keffer & Jones, Masonic Temple, Des Moines, Iowa, are architects.

The Commonwealth Edison Co., 72 West Adams Street, Chicago, is completing arrangements for the construction of the second unit of its Crawford Street generating plant, one-story, 180 x 215 ft., to cost approximately \$1,750,000 with machinery. Graham, Anderson, Probst & White, 50 East Jackson Boulevard, are architects.

The Peoria Auto Body Co., Peoria, Ill., has awarded a general contract to Tapping & Shrum, 309 South Jefferson Street, for a two-story and basement service, repair and garage building to cost \$65,000. F. J. Kleine, 331 Main Street, is architect. John Fried is general manager.

The Gardner Governor Co., Quincy, Ill., manufacturer of engine governors, etc., will soon ask bids on a general contract for a one-story addition, 100 x 250 ft., to cost about \$65,000. Frank D. Chase, Inc., 720 North Michigan Avenue, Chicago, is architect and engineer.

Pittsburgh

PITTSBURGH, June 14.

THERE is still a fairly steady demand for machine tools in this market, but new inquiries are somewhat fewer. Machine tool dealers are still interested in the projected extension of the Beech Bottom, W. Va., plant of the Wheeling Steel Corporation to house a metal lath and expanded metal department. The Carnegie Steel Co. is about to close on a big press and other auxiliary equipment for its new H-beam mill at Homestead which, contrary to reports, will not be completed or in operation before Jan. 1, 1927.

The Pittsburgh Steel Products Co., Pittsburgh, manufacturer of seamless steel tubing, is establishing new branch offices at Houston, Tex., and Tulsa, Okla. J. R. Edwards, as announced in THE IRON AGE June 10, will be manager at Houston and will also have supervision of the Tulsa office. To serve the Gulf Coast and Mid-continent oil fields the company has established a pipe storage yard at Memphis, Tenn., and in addition will carry a stock of its products at Houston. For several years it has been manufacturing seamless steel tubing, casing and drill pipe for oil country use, up to and including 6½-in. O. D. It has nearing completion a large new Mannesman-Pilger mill for making seamless steel tubing in lengths up to 12½-in. O. D., which is the first mill of its type and size to be installed in an American plant.

The Reineck & Chew Co., 110 Third Avenue, Pittsburgh, has been incorporated with authorized capital of \$100,000 and has purchased the assets of the C. T. Reineck Co., Pittsburgh, manufacturer of hotel and restaurant fixtures. In addition to manufacturing, the company will act as distributor of utensils and supplies for hotels, clubs, hospitals, etc.

In connection with a power development at Cheat Haven, Pa., the West Penn Power Co., West Penn Building, Pittsburgh, has authorized the immediate installation of three 1600-kw. generators with auxiliary equipment, to be ready for service in the fall.

The Oldsmobile-Pittsburgh Co., 424 North Craig Street, Pittsburgh, local representative for the Oldsmobile car, has leased a three-story building at 5914 Penn Avenue, East Liberty, for a new branch service and repair department, with portion for offices.

The Hookless Fastener Co., Meadville, Pa., manufacturer of metal fasteners, etc., has awarded a general contract to Grant & Son, 4500 Euclid Avenue, Cleveland, for its two and three-story plant, 50 x 200 ft., and 60 x 300 ft., respectively. Wilbur Watson & Associates, 4614 Prospect Avenue, Cleveland, are architects and engineers.

The Island Creek Coal Co., Fourteenth Street, Huntington, W. Va., has preliminary plans for the development of additional properties in the Logan field, to include the installation of complete mining machinery, hoisting equipment, cars, etc. A. R. Beisel is general manager.

The Board of Education, Johnstown, Pa., is said to be planning the early purchase of a number of machine tools

for manual training, including lathes, milling machines, grinders, etc.

The Department of Public Works, Pittsburgh, plans the installation of pumping machinery and auxiliary equipment in connection with proposed extensions and improvements in the municipal water plants, to cost about \$1,500,000. The City Council has granted an appropriation of this amount.

The Forest Barge Co., Tionesta, Pa., will discontinue business, and the barge manufacturing yard and plant will be dismantled and the equipment sold. The plant has been producing about 50 barges a season.

The Viscose Co., Marcus Hook, Pa., is having plans completed for a two-story addition to the power house at its artificial silk mill at Lewistown, Pa., to be 60 x 95 ft., and to cost \$75,000 with equipment. The Ballinger Co., Twelfth and Chestnut Streets, Philadelphia, is architect.

South Atlantic States

BALTIMORE, July 14.

CONTRACT has been let by the Statton Furniture Co., 913 Potomac Avenue, Hagerstown, Md., to M. B. Keener, 31 Irvin Circle, for its one-story plant, 90 x 200 ft., to cost \$85,000 with machinery. The company was organized recently with Philip Statton as head. A. J. Klinkhart, 54 West Washington Street, is architect.

Bids will be asked by the Maryland Meter Works, Inc., 309 East Saratoga Street, Baltimore, during the next week or two for its proposed six-story addition, 80 x 200 ft., to cost approximately \$250,000 with equipment. Theodore W. Pietsch, American Building, is architect. E. S. Dickey is general manager.

The Barton Paper Mills, Inc., Wilmington, Del., recently organized with a capital of \$100,000, headed by Lilburn Chandler, I. O. O. F. Building, and associates, has acquired property in the Kiamensi Springs district as a site for a proposed new paper mill. Plans for the initial unit will soon be drawn, reported to cost \$75,000. Four additional units will be built later. Barton Smith is vice-president and general manager.

D. C. Elphinstone, Inc., Continental Building, Baltimore, machinery dealer, has inquiries out for a gasoline locomotive, standard gage, about 8-tons capacity; also for a truck loader, Haiss creeper type preferred.

The Summers Fertilizer Co., Stock Exchange Building, Baltimore, has A. N. Ingram, engineer, same address, preparing plans for rebuilding its plant at Canton, recently destroyed by fire. The new structure will be three stories, estimated to cost \$300,000 with machinery. J. E. Totman is president.

The Southeastern Mfg. Co., Savannah, Ga., recently formed by Victor B. Jenkins, Citizens' & Southern Bank Building, and associates, with a capital of \$200,000, has taken over a three-story building, 60 x 320 ft., and will establish a new plant for the manufacture of caskets and kindred products. Mr. Jenkins will be vice-president.

The Savannah Electric & Power Co., Savannah, Ga., is disposing of a note issue of \$1,700,000, a portion of the proceeds to be used for extensions and improvements, including the installation of a new 20,000-hp. steam-operated electric power station, on which work has been started, and transmission lines. Donald C. Barnes is vice-president.

The Sanford Brick & Tile Co., Sanford, N. C., is said to be completing plans for the early construction of a new plant near the city limits, reported to cost close to \$100,000 with equipment.

The High Point Bending & Chair Co., Silver City, N. C., F. J. Bolling, vice-president, has acquired property at Atlanta, Ga., and is reported planning the construction of a new factory to cost more than \$100,000 with equipment. It is said that work will begin early in the fall. The company is now operating a local assembling plant at 481 Whitehall Street.

Fire, June 9, destroyed a portion of the plant of the Virginia-Carolina Rubber Co., Richmond, Va., manufacturer of automobile tires, etc., with loss reported at \$85,000 including equipment and stock. It is planned to rebuild at once.

The Hackley Morrison Co., 1708 Lewis Street, Richmond, Va., machinery dealer, has inquiries out for a 6 x 10 stationary jaw crusher; also for a spreader, all-steel, Jordan type.

The Galliher-Crabtree Co., Lynchburg, Va., recently organized by Harry E. Crabtree, 202 Tenth Street, and associates, has leased property for a new plant for the manufacture of chemical specialties. It contemplates the early purchase of equipment, including labeling machines, automatic filters, bottling machinery and auxiliary equipment.

The Citizens' Oil Mill, Anderson, S. C., recently acquired by new interests headed by Bevin Brown, secretary, has preliminary plans for extensions and improvements to cost about \$60,000.

The Board of Education, Wilmington, Del., has tentative plans for the establishment of a trade and vocational school, equipping an existing building for this purpose. The Chamber of Commerce has appointed a committee, headed by Harry Speakman, chairman, to assist in completing the project, which is estimated to cost in excess of \$75,000.

The J. G. Skelton Co., Inc., Electric Building, Richmond, Va., has inquiries out for a saddle tank locomotive, 35 to 50-tons capacity, standard gage.

Robert E. Baker, 2558 Derbyshire Road, Cleveland, and associates have concluded negotiations for the purchase of about 3½ acres at Pulaski, Va., as a site for a steel plate and structural steel fabricating works. Plans will soon be drawn for the initial unit, to be one-story, 110 x 150 ft., with adjoining smaller buildings, to give employment to about 100. Two traveling cranes, one of 140-tons and one of 10-tons capacity will be installed. The entire plant is estimated to cost \$125,000. E. W. Calfee, mayor, Pulaski, is interested in the project.

The City Council, Rome, Ga., contemplates the installation of pumping equipment in connection with proposed extensions and improvements in the municipal waterworks to cost \$70,000. A special election has been called on June 24 to vote bonds.

The Carolina-Cadillac Co., Main Street, Winston-Salem, N. C., local representative for the Cadillac automobile, has plans under way for a new service, repair and garage building at Charlotte, N. C., to cost about \$100,000 with equipment. M. R. Marsh, Latta Arcade, Charlotte, is architect.

R. P. Johnson, Wytheville, Va., machinery dealer, has inquiries out for a band sawmill outfit; also for a small jaw crusher for crushing manganese.

The Sinclair Refining Co., 45 Nassau Street, New York, has acquired property at Wilmington, Del., and will soon begin the construction of a new oil storage and distributing plant to cost in excess of \$50,000. An automobile service, repair and garage building for company trucks will also be erected.

Cleveland

CLEVELAND, June 14.

MACHINE tool sales the past week were very light and confined almost wholly to single tools. Very little new inquiry is coming out. The Detroit territory is unusually quiet and not much business is expected from the automotive industry until definite plans are worked out for plant extensions. The latest report is that the Oakland Motor Car Co., Pontiac, Mich., a General Motors unit, will build a large plant for the manufacture of Pontiac cars. There are no inquiries from the railroads in this territory. The Navy Department has taken bids for a turret lathe for Puget Sound.

The White Motor Co., Cleveland, has placed contract with the George A. Rutherford Co., for a one-story and basement factory, 100 x 150 ft. W. S. Ferguson, 1900 Euclid Building, is the architect.

The Patterson Auto Body Co., 2335 East Twenty-second Street, Cleveland, contemplates the erection of a one-story plant, 60 x 120 ft. G. W. Patterson is president.

The city of Akron, Ohio, has taken bids for a two-story municipal garage. W. F. Peters is director of service.

The Nash-Brandt Co., Steubenville, Ohio, has placed contract with R. R. Kitchen, Wheeling, W. Va., for a four-story garage and showroom, 75 x 80 ft.

The Cox Tool Co., Cleveland, has taken a 20-year lease on the plant of the Imperial Steel Range Co., Detroit Avenue at West Twenty-ninth Street, for the manufacture of wrist pins and other products in the automotive field.

The Cleveland Tool & Supply Co. has been appointed local distributor for the Lincoln Electric Co., Cleveland, and will carry a full line of Lincoln motors and stable-arc welders.

The National Supply Co., Toledo, Ohio, is opening a machine tool salesroom and office at 211 McCrear Street, Indianapolis.

The Alliance Tank Co., Alliance, Ohio, has been incorporated with capital stock of \$60,000 and will manufacture tanks and other plate products, using the electric welded method of construction principally. The company will build

a plant and is now in the market for plate bending rolls, a Niagara flanger, punches, hoists, two derricks, etc. Used machines are preferred. It will also be in the market shortly for gasoline under-ground and above-ground storage tanks, pipe fittings, valves, etc.

Gulf States

BIRMINGHAM, June 14.

PLANs have been filed by N. C. Walters, Dallas, Tex., for a three-story automobile service, repair and garage building, 94 x 157 ft., to cost \$110,000 with equipment.

Fire, June 4, destroyed a portion of the mill of the Yazoo Spoke Co., Yazoo City, Miss., with loss estimated at \$25,000 including equipment. It is planned to rebuild.

The Florida Clay Products Corporation, Coral Gables, Fla., Ray Heald, head, recently organized, has plans for the construction of new works consisting of a main unit, 25 x 115 ft., and smaller structures, for the manufacture of tile products, reported to cost about \$85,000.

Anderson, Clayton & Co., Dallas, Tex., dealers in cotton, etc., have plans for the construction of a new cottonseed oil mill at Abilene, Tex., estimated to cost \$300,000 with machinery. The company is also planning for two other buildings later, consisting of a by-products plant and seedhouse, to cost approximately \$100,000 additional.

The Alabama Power & Light Co., Birmingham, is considering tentative plans for the establishment of a new electric light and power station at Falkville, Ala., to cost in excess of \$35,000 with equipment.

R. E. Boggs, Age-Herald Building, Birmingham, machinery dealer, has inquiries out for a 200-kw. motor-generator set, a.c., 2300 volts; also for a gyratory crusher, No. 8 McCully preferred.

The Shrewsbury Ice & Produce Co., Shrewsbury, La., has plans under way for a new ice-manufacturing plant on the Shrewsbury Road for an initial output of 30 tons per day.

The Thermo Tile Co., Pensacola, Fla., recently organized, has acquired the former plant of the Murphy-Morrison Co., at Brent, and will remodel for a new plant for the manufacture of concrete tile products. J. H. Irving and W. T. Porter, both of Pensacola, head the company.

The Florida Power & Light Co., Miami, Fla., has work under way on an expansion and improvement program to cost about \$50,000,000 by the end of the year, including extensions in power plants, additional equipment and new transmission lines. J. H. Gill is vice-president and general manager.

The Goodyear Tire & Rubber Co., 66 S. W. First Street, Miami, Fla., with headquarters at Akron, Ohio, has awarded a general contract to the St. John Construction Co., 629 N. W. Seventh Street, for a three-story factory branch and distributing plant to cost \$65,000. Henry La Pointe, Burdine Building, is architect.

The Martin Cement & Products Co., West Twenty-third Street, Hialeah, Fla., has been making inquiries for a quantity of cement brick and block equipment, for installation in a local plant.

A controlling interest in the Texas Steel Mill, Fort Worth, Tex., has been acquired by John H. Kirby, Houston, Tex., and a group of financial interests. Plans are under way for expansion in the present mill and the installation of additional machinery. John A. Cayle, Pittsburgh, has been engaged to manage the plant and will take up a local residence soon.

The Palms Ice Co., West Palm Beach, Fla., has work under way on a new ice manufacturing plant with initial unit of 60 tons per day, estimated cost \$150,000. Henry L. Schrod is president.

The Common Council, Sarasota Heights, Fla., plans the installation of pumping machinery in connection with the establishment of a local waterworks, estimated to cost \$100,000 with machinery.

The Comal Power Co., New Braunfels, Tex., operated by the San Antonio Public Service Co., San Antonio, Tex., is pushing construction on the first unit of its new steam-operated electric power plant and will soon begin the machinery installation. It is purposed to have the station ready for operation in the fall. Edward H. Kifer is vice-president and general manager of the San Antonio company.

The Coates Plumbing Supply Co., 312 Washington Street, Tampa, Fla., has plans for a new five-story factory estimated to cost \$150,000. A department will be installed for pipe fitting, cutting, threading, etc. Fred J. James, Citizens' Bank Building, is architect.

The Board of Education, McAllen, Tex., contemplates the installation of manual training equipment in a proposed new junior high school to cost about \$150,000. Ralph H. Cameron, City National Bank Building, San Antonio, is architect.

Cincinnati

CINCINNATI, June 14.

IN the first half of June machine tool sales have been moderate in volume. Local builders believe that buying will be curtailed somewhat in the next 60 days, but that the fall season will bring a resumption of purchases on a large scale. Inquiries by railroads have been numerous and prospective business from that source looms large. On the other hand, automobile makers are showing little interest.

In addition to the list of machines bought a week ago, the Illinois Central has closed for a 5-in. Acme upsetting and forging machine. It is understood that this carrier will purchase the rest of the tools for its Paducah, Ky., shops within the next 10 days. The Chicago & North Western contracted for two No. 3 axle lathes, while the Boston & Albany bought a 5-in. x 96-in. bending roll and a 6-in. motor-driven metal band saw. The New York Central took a 4-ft. Morris radial drill, and the Union Pacific purchased a No. 142 Ransom grinder. The Westinghouse Electric & Mfg. Co. bought a 6-ft. right line radial drill from the Niles-Bement-Pond Co. The Magnus Co., Chicago, has taken a 100-ton bushing press. A Louisiana company purchased a large saw and a grinder, and the McKinney Steel Co., Cleveland, bought a Racine motor-driven saw. The West Penn Cement Co., West Winfield, Pa., is the buyer of a 26-in. motor-driven upright drill.

Ovens, power equipment, conveying and other machinery will be installed in the new two-story and basement plant, 100 x 120 ft., to be erected by the Ward Baking Co., 367 Southern Boulevard, New York, at Columbus, Ohio, to cost \$250,000 with equipment. C. J. Cropp, 513 Berkeley Road, Columbus, is architect.

The Specialty Paper Co., Miami Chapel Road, Dayton, Ohio, has filed plans for an addition to its mill, to cost about \$23,000 with equipment.

The Cumberland Portland Cement Co., Cowan, Tenn., is said to be completing plans for the construction of a new local mill, to cost in excess of \$500,000 with machinery. W. V. Davidson is president.

The Kentucky Electric Power Co., Nortonville, Ky., is disposing of a bond issue of \$1,100,000, a portion of the proceeds to be used for extensions and improvements in plants and system, including an addition to the steam-operated electric generating plant at Nortonville, on which work has been started. Transmission lines will be extended for service in the coal-mining district in western Kentucky. The J. G. White Engineering Corporation, 43 Exchange Place, New York, is in charge of the present expansion.

The Anderson-Tully Co., Memphis, Tenn., has tentative plans for a new lumber and veneer mill, on site of present buildings which will be razed, estimated to cost \$300,000 with machinery. B. C. Tully is vice-president.

The Louisville Petroleum Refining Co., Inter-Southern Building, Louisville, has work under way on a new gasoline refinery at its plant, including cracking equipment and auxiliary machinery, to cost \$60,000. William M. Mitchell is president.

The City Service Bureau, Columbus, Ohio, W. H. Duffy, service director, is planning the erection of a new mechanical shop to cost \$100,000 with equipment.

The Kentucky Utilities Co., Metropolitan Building, Louisville, is planning the construction of a super-power automatic substation at First and Madison Streets, Paducah, Ky., to cost in excess of \$85,000 with equipment.

Merrill B. Parker, 1912 Oak Street, Chattanooga, Tenn., has inquiries out for a standard gage locomotive, Mogul type, about 30-tons capacity.

The Ohio Pulley Co., Maysville, Ohio, has completed plans for the immediate construction of a one-story addition, 60 x 300 ft., to cost \$50,000 with equipment.

Milwaukee

MILWAUKEE, June 14.

MACHINE tool business appears to be taking an upward swing after a period of hesitancy, and inquiries also are becoming more active. Locally, industrial construction is being resumed in a more substantial, if conservative way. Machine tool plants have not found it necessary to curtail working forces, and there is still an insistent call for skilled labor.

The Hamilton Mfg. Co., Two Rivers, Wis., manufacturer of metal and wood furniture and equipment, which is

working on a plant enlargement program to cost \$1,000,000, is asking bids on an addition to its steel plant, 70 x 151 ft., three stories, and 65 x 125 ft., one story. Tenders also are being taken on two 350-hp. bent tube boilers, automatic stoker equipment, coal and ash handling apparatus and other needs for a power plant addition now under construction.

The American Skein & Foundry Co., Racine, Wis., has let the general contract to Nelson & Co., local builders, for erecting a piano plate finishing room to cost about \$50,000. Improvements also are being made in other departments which are requiring a sizable list of miscellaneous metal-working equipment.

J. C. Stone, Watertown, Wis., has acquired manufacturing rights for Wisconsin, Illinois, Iowa, Minnesota and Upper Michigan on the Bright carbon-dioxide refrigerating machine, designed by S. L. Bright, San Francisco, and will engage in its manufacture at once in a part of the Breuer-Stone plant at Watertown. Mr. Bright will be associated with Mr. Stone as consulting engineer and will equip and supervise an experimental shop as well. Equipment is now being purchased.

Holland, Ackerman & Holland, engineers, 53 West Jackson Boulevard, Chicago, in charge of the construction and equipment of two hydroelectric generating plants on the Menominee River at White Rapids and Clark Hill, near Marinette, Wis., will close bids June 18 on six distinct units, including generators, turbines and governors. Each plant will cost about \$850,000 complete.

The Standard Foundry Co., Racine, Wis., specializing in automobile engine castings and gray iron and semi-steel automotive castings, has engaged A. A. Wickland & Co., 5 South Wabash Avenue, Chicago, to design a new unit, 110 x 240 ft., adjoining the present works at 1600 Kewaunee Street, to cost about \$150,000. Electric furnace equipment, cranes and other mechanical requirements are to be placed shortly. Arthur R. Jones is president and general manager.

Ben Plowright, Menasha, Wis., has acquired on behalf of unidentified interests the entire plant and property of the defunct Uncle Sam Tractor & Machinery Co. at Menasha, consisting of two shops, each 50 x 250 ft., and an office building. It is understood that the new owner will devote the plant to machinery manufacture, but the exact nature of the proposed product is withheld for the present.

The Wisconsin Water Softener Co., Madison, Wis., has been incorporated with a capital stock of \$25,000 to engage in the manufacture of water softeners, heaters, laundry equipment, filters and coolers. Plant space will be leased for the present or contracts made with local machine shops. The principals are B. L. and C. H. Radeaux, of Madison.

The Milwaukee works of S. F. Bowser & Co., Inc., Fort Wayne, Ind., at 122 Reservoir Avenue, in which production recently was discontinued following consolidation with the main works at Fort Wayne, are being dismantled and will be sold. Representatives of the Bowser company are on the ground to effect disposition of the entire equipment, including milling machines, lathes, shapers, drill presses, threaders, punches, nickel-plating and miscellaneous equipment at private sale.

St. Louis

ST. LOUIS, June 14.

WORK will begin by day labor on a new three-story and basement plant, 85 x 100 ft., for the United States Register Co., 350 West Fifth Street, Kansas City, Mo., estimated to cost \$60,000.

The Board of Education, Columbia, Mo., plans the installation of manual training equipment in its proposed two-story senior high school, estimated to cost \$350,000, for which bids are being asked on a general contract until June 22. William B. Ittner, Inc., Board of Education Building, St. Louis, is architect.

The Common Council, Stillwater, Okla., plans the installation of pumping machinery in connection with proposed extensions and improvements in the municipal water system estimated to cost \$40,000.

The Arkansas Natural Gas Co., Shreveport, La., C. W. Kramer, superintendent, is said to have plans under way for a new gas compressor plant at Emmett, Ark., reported to cost in excess of \$50,000.

The Common Council, Claffin, Kan., plans the installation of pumping machinery in connection with proposed extensions and improvements in the municipal waterworks, for which a bond issue of \$40,000 is being arranged. W. B. Rollins & Co., Railway Exchange Building, Kansas City, Mo., are consulting engineers.

The Metropolitan Utilities District, Omaha, Neb., has completed plans for a three-story automobile service, repair and

garage building, 140 x 170 ft., to cost about \$225,000 with equipment.

The Board of Education, Lincoln, Neb., plans to purchase manual training equipment early in August for the addition to the senior high school, estimated to cost \$250,000. Davis & Wilson, 525 South Thirteenth Street, are architects.

The Gerst Brothers Meat Co., 3823 Lucky Street, St. Louis, is considering the installation of cold storage and refrigerating equipment in its proposed two-story packing plant on adjoining site, 100 x 200 ft., estimated to cost \$200,000.

The Export Cooperage Co., Memphis, Tenn., has acquired about 12 acres near Russellville, Ark., and contemplates the early construction of a new stave mill and finishing plant, to cost in excess of \$100,000 with equipment. W. R. Taylor is president.

The Stinson Adding Machine Co., 321 South Grand Avenue, St. Louis, will ask bids early in the fall for the erection of its proposed two-story and basement addition, 60 x 245 ft., to cost about \$100,000 with equipment. C. L. Thurston, 130 Kenilworth Street, Webster Groves, Mo., is architect.

The Capital Iron Works, Seventh and Holliday Streets, Topeka, Kan., John Singleton, head, has plans under way for a new metal and iron-working plant to cost about \$200,000 with equipment.

The Roth Mfg. Co., Hastings, Neb., manufacturer of automobile equipment, will take bids at once for its proposed one and two-story plant, 100 x 100 ft., estimated to cost \$100,000 with equipment. K. H. Gedney, Second Street and Kansas Avenue, is architect. G. A. Roth is president.

The East Joplin Foundry Co., 1201 North Street, Joplin, Mo., plans to rebuild the portion of its plant recently destroyed by fire. An official estimate of loss has not been announced. Dewey Reed is head.

The St. Louis office of the American Steel Foundries is now at 1717 Railway Exchange Building.

The Laclede Brass Works, Inc., 307 Cedar Street, St. Louis, which has been operated both as a partnership and on an individual ownership basis, has been incorporated with capital stock of \$50,000, of which \$30,000 has been paid in. William Modra, president and treasurer, is the principal shareholder. The other officers are Louis H. Seifert, vice-president, and Frederick Hoener, secretary. The company operates a foundry specializing in brass and other non-ferrous lines. It manufactures the Laclede sun visor and the Siliger patented rubber rammer butt.

The Corby Supply Co., 1956-60 North Broadway, St. Louis, will remove about July 1 to the building recently purchased at 3942-46 West Pine Boulevard, where it will carry a complete exhibit and stock of compressed air, electric, gas, oil and steam-driven tools and equipment.

Pacific Coast

SAN FRANCISCO, June 9.

THE Union Oil Co., Union Oil Building, Los Angeles, will rebuild its refinery at Brea, near Los Angeles, destroyed by fire a few weeks ago, with loss reported at \$650,000. A new tank department, comprising four 80,000-bbl. units, will also be installed.

The Nevada-California Electric Corporation, Riverside, Cal., with headquarters in the Symes Building, Denver, Colo., is arranging for a new bond issue of about \$26,000,000, a portion of the fund to be used for extensions and betterments in power plants and system, and other expansion.

The Modesto Refrigerator Co., Modesto, Cal., recently organized by W. F. and H. L. Beard, 912 Eleventh Street, has plans for a new ice-manufacturing and precooling plant to cost close to \$150,000, with equipment.

The Tucson Oil & Refining Co., Tucson, Ariz., has completed plans for a new oil refinery, with initial capacity of about 500 bbl. per day. It will cost in excess of \$60,000 with equipment.

The Cosmopolitan Machine Works, Inc., 57 Tehama Street, San Francisco, will begin the construction of a one-story machine shop, 55 x 90 ft., to cost about \$20,000.

The American Radiator Co., San Francisco, has awarded a general contract to Lindgren & Swinerton, 225 Bush Street, for its proposed two-story factory branch and distributing plant to cost \$100,000. H. J. Brunner, Sharon Building, is architect and engineer. Headquarters are at 40 West Fortieth Street, New York.

The City Council, Dayton, Wash., is considering the installation of pumping equipment in connection with a new municipal waterworks estimated to cost \$78,000. A bond issue in this amount is being arranged.

The Ford Motor Co., Seattle, has filed plans for a one-story addition to its parts and assembling plant at 724

Fairview Avenue, North, to cost \$25,000 exclusive of equipment.

The California Fruit Wrapping Mills, Inc., Pomona, Cal., recently organized, has awarded a general contract to the Union Iron Works, 5125 Santa Fe Avenue, Los Angeles, for the first unit of its proposed paper mill, 70 x 260 ft., to cost about \$90,000 with equipment. Erick Fernstrom is vice-president.

The Pittsburg Union High School District, Pittsburg, Cal., will build manual shops at its proposed new group high school estimated to cost \$230,000, for which preliminary plans are being prepared by Lewis Stone, 357 Twelfth Street, Oakland, Cal., architect. A bond issue is being arranged for the work.

The Northwestern Power & Light Co., Port Angeles, Wash., has received permission to appropriate waters from the Elwha River for a proposed hydroelectric power development.

The Industrial Works, Bay City, Mich., has appointed the Nevada Engineering & Supply Co., Reno, its representative in Nevada. H. L. Livingston, Monadnock Building, San Francisco, is Pacific Coast sales manager of the Industrial Works.

Canada

TORONTO, June 14.

THERE has been very little change in the general tone of this market. Orders are appearing frequently for single tools, and local dealers and builders the past week or two have received a few small lists for as many as a half-dozen machines. Some buying has recently been done on new works account, although sales are mostly for replacement. A fairly active demand is also noted for rebuilt and second-hand tools of a diversified nature. While a large amount of machinery used in Canadian plants is produced in the Dominion, trade figures indicate that tools imported from the United States make up a large percentage of the equipment of Canadian plants.

According to A. P. Wills, president, Wills & Co., Montreal, manufacturers of pianos, etc., will build an addition to their plant at St. Catharines and Drummond Streets, of steel frame with concrete flooring. Tenders will be called for construction, and considerable new equipment will be required. Ross & Macdonald, Montreal, are architects.

The Benedict Proctor Mfg. Co., Trenton, Ont., manufacturer of silver plate ware, jewel boxes, etc., will build an addition to its factory.

The Engineering & Machine Works of Canada, Ltd., St. Catharines, Ont., is in the market for a flanging press for plate work.

The Colonial Piano Co., whose factory at St. Therese, Que., was recently destroyed by fire with a loss of \$175,000, is negotiating with the Town Council, St. Jerome, Que., with the intention of removing its business there. A new building will be required as well as complete equipment. It is intended to double the capacity of the former works.

The Halifax Shipyards, Ltd., Halifax, N. S., will start work at once on the erection of a plate shop at Dartmouth, N. S., to cost \$10,000.

Plans are being prepared by Watt & Blackwell, Bank of Toronto Chambers, London, Ont., for the erection of an addition to the plant of the Kellogg Co. of Canada, Ltd., Dundas Street, London, Ont., to cost \$100,000.

The Michigan Central Railway is having plans prepared for the erection of a coal-handling plant near Waterford, Ont., to cost \$20,000. A. Leslie, St. Thomas, Ont., is superintendent of building.

William I. Bishop, Ltd., 10 Cathcart Street, Montreal, has been awarded the general contract for the erection of a \$5,000,000 paper mill and power plant at Ste. Anne de Beaupre, Que., for the St. Anne Power & Paper Co.

Negotiations are under way between the city of Port Arthur, Ont., and the Nipigon Corporation, whereby the latter proposes to build another pulp and paper mill in Port Arthur. It will have a capacity of 400 tons per day and represent an expenditure, when completed, of \$10,000,000.

R. S. McLaughlin, president General Motors of Canada, Ltd., Oshawa, Ont., has announced that under the drawback arrangement introduced by the Federal Government in the dropping of the 5 per cent excise tax on automobiles of \$1,200 and under, of which 40 per cent is made in Canada, and which must be increased to 50 per cent by April 1, 1927, his company will take immediate steps to enlarge its

works at Oshawa. The entire plant will be overhauled and new methods and some new equipment introduced with view to greater efficiency. It is understood that \$750,000 will be spent on the Oshawa works and that two new buildings will be erected.

The Fort Frances Pulp & Paper Co., Fort Frances, Ont., has plans for expansion which include the erection of three hydroelectric stations which will add 27,000 hp. to the present supply and the building of a newsprint mill at Fort Frances with a daily capacity of 150 tons.

The new mill of Price Brothers & Co., Riverbend, Que., will be enlarged by the addition of two newsprint machines for which the mill was originally designed. Construction will start soon and it is intended to have the mill in operation by the end of next year.

Western Canada

The Sydney Roofing & Paper Co., Victoria, B.C., is planning the erection of a mill for the manufacture of cardboard. It also contemplates additions to its plants at Vancouver, B.C., where additional land has been purchased.

The North Vancouver Sawmills, Ltd., Vancouver, B.C., has started work on the erection of a sawmill to cost \$100,000.

The Manitoba Pulp & Paper Co., Fort Alexander, Man., has started work on the erection of a newsprint mill. Contracts for well over \$1,000,000 have been awarded in this connection and it is expected that the mill will be in operation by the end of this year.

Foreign

THE Soviet Union Grain Trading Co., known as the Khleboproduct, care of the Amtorg Trading Corporation, 165 Broadway, New York, official purchasing agent for the Russian Soviet Government, has plans under way for the construction of a number of new flour mills and grain elevators, as well as the reconstruction of several existing such structures. Ivan S. Lobachov, chairman of the company, and M. Vavilov, contracting engineer, are now in the United States for a short time, during which American mills will be visited, and orders placed for the necessary equipment.

Jorge Sempe, P. O. Box 236, Vera Cruz, Mexico, has been making inquiries for hand cars or carts, from 5 to 10 tons capacity, for loading and unloading freight from steamers.

The Victorian Government Railways, Melbourne, Australia, are asking bids until June 14 for two capstan lathes, complete with equipment.

The Department of Public Works, San Salvador, Salvador, Dr. Marcos A. Letona, under-secretary, has plans under consideration for a proposed State hydroelectric power development. A preliminary statement, in Spanish, is available at the office of the Electrical Equipment Division, Bureau of Foreign and Domestic Commerce, Washington, reference Salvador No. 205359. The American Consulate, San Salvador, C. van H. Engert, Charge d'Affaires, is in touch with the project.

The Chrysler Motor Corporation, Massachusetts Avenue, Detroit, has formed a foreign subsidiary under the name of the Chrysler Sales Corporation. Plans have been completed for a new assembling works and service plant at Antwerp, Belgium, and it is expected to establish similar

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branches in other countries. Walter P. Chrysler is president.

The Pan-American Petroleum & Transport Co., 120 Broadway, New York, is said to have concluded an agreement with the National Railways of Mexico, Mexico City, for the development and operation of the oil properties of the railroad, the cost of development, machinery, etc., to be shared by the two interests, with the railroad securing all of its fuel oil requirements from the Pan-American company, and excess oil going to the latter organization.

Reorganization of Canadian Company Foreshadowed

The annual financial statement of the British Empire Steel Corporation, Montreal, which appeared June 7, showed a loss for the year of nearly \$4,500,000 and a reduction of nearly \$4,000,000 in working capital. What with unfavorable operating conditions generally and the five-month strike a heavy deficit was generally expected. These and other features of the annual statement will be overshadowed by the announcement made at the general meeting by President Roy M. Wolvin that the administration is about ready to face the ordeal of reorganization which has been looming for several years. The first to be affected will be the Dominion Iron & Steel Co. President Wolvin intimated that interest and sinking fund payments of this constituent company will be defaulted when due on July 1. He pointed out, however, that a wider scheme of reorganization is desirable and that special study has been made to this end, and, further, that some definite plan may be formulated within 60 days.

Conditions developed during recent years have made it impossible for the steel company to earn enough money to pay its depreciation and interest requirements. The outlook is serious, particularly when one tries to visualize the far-reaching result of the eventuality of the closing down of the steel industry in Nova Scotia. The one remaining hope for the salvation of the steel industry in the East now seems to repose in constructive action by the Tariff Advisory Board. It appears that the nature of the reorganization of the corporation will depend largely upon possibilities in this direction.

Following are the profit and loss figures and balance sheet of the British Empire Steel Corporation for the past two years:

	1925	1924
Income	\$1,133,443	\$923,775
Sinking fund, depreciation, etc.	1,341,764	1,112,515
Deficit	\$2,475,207	\$188,740
Bond interest	1,936,223	2,023,846
Deficit	\$4,411,430	\$2,212,586
Preferred dividend		145,033
Year's loss	\$4,411,430	\$2,357,619
Prior deficit	1,326,588	†1,031,031
Total deficit	\$5,738,018	\$1,326,588

*Loss from operations of properties in 1925.

†Surplus.

ASSETS		
	Dec. 31, 1925	1924
Properties	\$134,349,964	\$135,266,918
Other companies	642,202	808,075
Trustee cash	36,642	22,932
S. F. bonds	233,342	221,670
Inventories	10,776,285	11,431,377
A. & B. rec.	6,556,199	5,423,872
Investments	37,336	37,336
Cash	200,836	966,332
Def. charges	1,418,839	1,621,033
Total assets	\$154,251,648	\$155,789,545
LIABILITIES		
First pfd. stock	\$8,032,100	\$8,032,100
Second pfd. stock	49,958,575	49,958,575
Common stock	21,305,400	21,305,400
Pfd. stock of const. cos.	11,756,300	11,756,300
Acadia Coal	113,300	113,300
Cap. stock res.	161,600	161,600
Funded debt	36,988,804	37,682,295
Def. payments	184,300	383,400
Bank loans	4,827,470	2,259,791
Accounts payable	2,208,932	*1,879,483
Accrued wages	284,668	
Accrued interest	712,035	590,016
Reserves	1,671,311	1,309,003
Surp. at organ.	21,784,870	21,784,870
Total liabilities	\$159,989,665	\$157,116,133
Deficit	\$5,738,018	\$1,326,588
	\$154,251,648	\$155,789,545

*Including accrued wages and other accruals.

WORKING CAPITAL		
	1925	1924
Current assets	\$17,570,657	\$17,848,917
Current liabilities	8,033,105	4,729,290
Net working capital	\$9,537,552	\$13,319,627

THE LAST WORD

(Contributed by the Reader Service Department of
The Iron Age Publishing Co.)

WHAT a lambasting the steel industry received last week at the boiler manufacturers' convention! Accusing the steel makers of faulty merchandising; not making enough money, antiquated sales methods, etc., etc., is becoming fashionable, both inside and outside the industry. And, like criticizing the weather, it is safe, too. Too safe, in fact.

This time the accusation is that the steel people (meaning the hot-rolled steel makers) do practically nothing to develop new markets for steel, contenting themselves with merely taking orders (sheet steel makers excepted). They are urged to make the public "steel conscious."

Our guess is that exactly nothing will be done by the steel producers themselves except where a tangible enemy presents itself, as, for example, in the case of steel sheets for roofing. Other roofing materials have cut into that market considerably, resulting in a joint campaign to recover the business, as well as to develop other markets.

But by and large the steel makers feel that their customers, the manufacturers of cold-drawn steel bars, steel lumber, steel flasks (foundry), steel furniture, steel automobile bodies, plus 97,835 other assorted steel products, know best how to expand their own individual markets.

Our own Dr. Haney writes the leading article in this week's issue of *Printers' Ink*, and says in part:

If business men were to cooperate more intelligently, and particularly if they had complete information concerning the situation in their respective lines, and acted accordingly without being affected by over-optimism or pessimistic fear, there would be few general ups and downs in business.

If you know of any business man subject to "over-optimism or pessimistic fear" tell him that careful reading of Dr. Haney's business analyses and forecasts in THE IRON AGE will cure him.

Keep one eye on your own sales, but be sure to focus the other optic on the aggregate business done by your industry, the business diagnosticians warn us.

Aside from the obvious advantage of knowing whether you are getting your share of the total business, the chief reason for this injunction is that you find out whether your industry is getting its share. If you are not getting the business yourself, it is better that some one of your competitors get it, rather than that it go outside of your industry altogether.

The buying power of this country is tremendous, but it does not equal its productive capacity. Our factories can produce more than the national income can buy. A new home may mean no automobile. An electric refrigerator may mean that the living room furniture will have to do for another year.

So competitors are wisely banding together to devise ways and means of attracting to their industry its due share of the expendable wealth.

The corset steel manufacturers must be starving to death these days, and the hairpin business is probably none too prosperous.

—A. H. D.